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JOINT TASK FORCE ONE

BUREAU OF YARDS & DOCKS GROUP

FINAL REPORT

FOR TESTS ABLE AND BAKER

CONDUCTED JULY 1946

NAVDOCKS P-3

(9) Director of Ship Material (final) Rept.

Joint Task Force One

Bureau

of

Yards & Docks Group

(6) OPERATION CROSSROADS Final Report.

For Tests Able and Baker.

[redacted] MAY OBTAIN COPIES OF THIS REPORT FROM DDC.

(11) 1946

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Enclosure G to DSM Serial 001500

(19600)

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SCOPE OF REPORT:

This report is intended to be a part of the final supplementary report to the Commander Joint Task Force One. As such, it contains essential items taken from the four gross damage and interim reports which have preceded it. Data from scratch gage record plates, not included herein, have been turned over to the Planning and Design Division, Bureau of Yards and Docks, for use in the structural analysis of the ARDC-13.

The crack survey of the ARDC-13, accomplished after Test Able, has been made Appendix A to this enclosure.

A listing of all photographs known to pertain to the three concrete vessels has been made Appendix B to this enclosure.

Prints of those photographs believed to be pertinent to this report have been provided in limited number as Appendix C. A complete file set of prints has been turned over to the Bureau of Yards and Docks for use in further study and analysis.

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B L A N K

PURPOSE--The purpose of the inclusion of concrete vessels in the target array was primarily to determine the effects of atomic bomb phenomena on land based concrete structures. A considerable fund of information has been provided by studies of structures at Nagasaki and Hiroshima, and in furtherance of these data, the Chief of the Bureau of Yards and Docks recommended to the Commander, Joint Task Force One, and to the Chief of Naval Operations, that concrete vessels be included in the target array for test purposes.

Three concrete vessels were selected: the ARDC-13, a 2800 ton drydock; the YOG-83, a gasoline barge; and the YO-160, a fuel oil barge.

The atomic bombs employed at Bikini were the Nagasaki type. It has been reported that the test A bomb had an estimated blast equivalent of 20,000 tons of TNT at ground level over smooth ground. It is understood that no precise estimate has been made of the underwater effects of the test B bomb, but that the data available indicate an equivalent of 17,000 ± 3000 tons of TNT. Other units of the task force secured data on pressures, temperatures, radiological effects, etc., a portion of which is restated later in this section to facilitate the reference. It must be borne in mind that at the date of this writing, these latter data have not been made generally available.

COMMENTS--All three concrete craft sustained damage or were made uninhabitable by both Able and Baker explosions.

In test A, the peak air blast pressures experienced ranged from 9.5 p.s.i. (YOG 83 at 1040 yards) to 40 p.s.i. (YO 160 at 540 yards). The duration of the positive pressures varied from about 3/4 of one second to about 1/2 second, the longer durations associated with the smaller peak pressures.

These pressures, or the winds which followed, affected the YOG 83 superficially (1040 yards), caused cracking and appreciable derangement of interior furnishings in the ARDC-13 (840 yards), and demolished much of the

superstructure of the YO 160 (540 yards).

The heat of the bomb presumably caused a fire on the YO 160, some ammunition on the YOG 83 burned, while timber on the ARDC-13 was charred.

The accompanying radioactivity had little if any effect on the YOG 83, had decayed to safe value in three days on the ARDC-13, and persisted for about a week on the YO 160.

In test Baker, the air blast did not apparently damage the concrete vessels. Eight days after Baker, however, the radioactivity on the ARDC-13 (1250 yards) was 70 times the allowed tolerance, on the YOG 83 (1160 yards) 140 times the allowable. The YO 160 (500 yards), judging from photographs, was swamped by the stern about 18 seconds after the blast by the wave which was generated by the underwater detonation.

The underwater shock or air blast may have damaged the YO 160. It is certain that her cargo tanks were ruptured -- since if they were not, the craft would have returned to the surface after being forced under. But it is more probable that the rupture was caused by the tons of water pouring on it than by bomb generated pressures.

Again, the underwater shock or air blast probably did no damage to the ARDC-13, since the flooding after Baker caused settlement at a rate of about .01 to .02 feet per hour, contrasted with the more rapid rate after Able of from .03 to .08 feet per hour.

CONCLUSIONS: Entirely aside from the problem of design against blast, certain broad conclusions can be made in the light of the foregoing considerations.

(1) Important water front structures must be designed to withstand severe wave action, since a harbor would appear a good target for enemy atomic bombing;

(2) Similarly, important waterfront areas must be designed and equipped to provide protection against and to effect the elimination of radioactive contamination; and

(3) The indiscriminate use of the concrete insert to fasten relatively light articles to overheads, decks, and bulkheads must be modified to insure that the insert will hold considerably more than the articles dead weight.

S E C R E T

B L A N K

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DATA ON PRESSURES TO WHICH CRAFTS WERE SUBJECTED

Craft	Heading of burst	Horizontal distance, yards	Air blast		Water shock	
			Peak side-on pressure, psi	Duration of positive pressure, seconds	Surface pressure psi	Duration at 10 foot depth, secs.
			TEST ABLE			
YO-160	70° abaft port beam	540	40	0.48	-	-
ARDC-13	11° fwd port beam	840	15	0.65	-	-
YOG-83	45° abaft stbd beam	1040	9.5	0.78	-	-
			TEST BAKER			
YO-160	Astern	500	17.5		2350	0.0005
ARDC-13	Off stbd beam	1160	3.3		630	0.0003
YOG-83	---	1250	2.5		550	0.0003

ARDC-13-DESCRIPTION. The ARDC-13, a 2800 ton capacity floating concrete drydock, was the unit about which the Yards and Docks observers centered their attention. The structure was built in March 1946, by the Haddock Company, Pasadena, California, under Contract NOy-11999. The pontoon was 84 feet by 389 feet, overall, with a depth of 14 feet, uniform throughout except for the rather abrupt fairing at the bow and stern. Mounted on the pontoon, and cast integrally with it, were two wingwalls, 26 feet high, 306 feet long, with widths of 10 feet at the top and 13½ feet at the base.

Structurally, the dock consisted of transverse frames, watertight bulkheads, and nonwatertight bulkheads, spaced 6 feet on centers, interlocked with longitudinal watertight and nonwatertight bulkheads, 13 to 28 feet apart, and with the overall shell of the walls, decks and bottom of the dock. The structural framework is depicted in the profiles and plans in Y&D Dwg. No. 267 911.

It should be pointed out that the dock was not completely equipped functionally. Pumps, flooding and discharge valves, and controls were omitted. Aside from temporary generators, bunks, and a galley, which served to make the dock habitable, it was merely a rigid frame concrete structure.

ARDC-13-INSTRUMENTATION: The dock, in presenting vertical walls rising over 30 feet above the water, resembled an industrial building more closely than any other floating unit the Navy uses. Further, its shape was admirable for the purpose, since it was anticipated that there would be a considerable movement, readily measurable, of the wingwalls relative to the pontoon.

With this movement in mind, steel frames were built within the wingwalls, rigidly mounted to the pontoon, with scribing mechanisms at the top to record sway in any direction, on plates fastened to the wingwall. Similarly, small scratch gages were mounted on the shell and frames at critical points to determine the strains at these points. These instruments are described in Y&D Dwg. No. 428 711.

ARDC-13-RESULTS OF TEST A: The first atomic bomb was detonated according to schedule, the morning of 1 July. Subsequently the dock was boarded for the first time by initial boarding team No. 4, of which the senior Bureau of Yards and Docks representative was a member, at about 1300 on 2 July. The dock was found to be radio-active, with an intensity of about 0.2 roentgens per 24 hours, and only a limited inspection could be made in the time alloted for safety.

The team reported that the dock had retained its structural shape but did have a slight list to port and was slightly down at the stern. The fenders on the port side were charred and the outboard face of the port wall was somewhat blackened. The inboard face of the starboard wingwall was darkened by blast from the top of the wall to about one half the distance to the floor of the dock. The line of demarkation between clean and blast marked concrete was not entirely clear. The catwalk connecting the tops of the wingwalls was destroyed and had only one cable left in place. Wooden walkways along inboard side, top of wingwalls were missing but most of the framing timbers which supported the walkway were in place. Walkway framing on the starboard wingwall and the inboard draft boards on this wall were charred.

The top of each wingwall A deck had longitudinal cracks extending almost the entire length of the wingwall. The crack in the port wall was most severe and was attended with spalling of the concrete and relative displacement of the sections in some areas. Fine line cracks were observed for most of the length of the dock floor C deck running longitudinally about 3 ft. on each side of the center line. Cracks were observed in the inboard faces of the wingwalls about 5 ft. above the dock floor on the starboard side and about four or five ft. from the top on both walls and about midway down on the port wall. One steel hatch cover was blown off and apparently went over the side from port A deck. The lower halves of the forward access ladders were blasted away. A section of torpedo tube and spoon and a

ships running light frame were found on the dock floor at the stern. These were believed to have been thrown on the dock by the explosion of the U. S. S. ANDERSON, a destroyer which was anchored about 200 yards off the port beam of the dock.

Interior damage seemed to be confined almost entirely to the port wingwall. Temporary plywood partitions for the Captain's and Chiefs' quarters and the sick bay were moved from their original positions, partly knocked down and torn apart. Bunks were in some cases knocked off their stanchions. Stanchions, secured by inserts to the overhead and deck, were still firmly in place, although a few had been bent. Mess tables, held with inserts in the concrete, had been uprooted. As a matter of record, a number of switches, mounted on bulkheads with the same type insert, had become loose during the craft's movement from California to Bikini, and the presumption is advanced that the insert employed was not the best available.

On the other hand, the electrical distribution panel and a large store of electric light bulbs, among a host of other items, remained entirely undamaged in the starboard wingwall.

At about 0830 on 3 July 1946, the dock floor was almost awash at the stern on the port side, indicating that flooding was increasing more rapidly than observed by Initial Boarding Team #4 on the previous day. The Bureau of Yards and Docks representative reboarded the dock with a monitor in attendance to check radioactivity, for the purpose of determining the extent of flooding and a proper course of action.

ARDC-13-REPAIRS AFTER TEST A: Since the water washing over the stern was occasionally covering the anchor chain on the port quarter, it was decided immediately to slip the anchor by cutting the chain, and then to tow the dock to the beaching area off the north west end of Enyu Island.

The dock was under tow at about 1100 and was subsequently anchored, bow in, at Enyu at 1420 with 6,000 pound bow and stern anchors to prevent drifting and broaching. When anchored, the dock had about 12 ft. of water under the bow and 25 ft. under the stern. While the dock was under tow, the Bureau of Yards and Docks observers removed the deflection gage plates from the wingwalls took extensive pictures of topside damage and made a hasty crack survey. The monitor advised that the dock could be occupied safely for only 12 hours on 3 July 1946. Before departing the dock, arrangements were made with Commander Task Unit 1.2.7. to arrange for pumps to facilitate inspection and salvage work.

On 4 July 1946, the ARDC-13 was cleared radiologically and the Officer in Charge of the dock returned to the ship with a part of his crew to assist in salvage work and inspection. The average draft at 1630 on 4 July was 13.2 feet and the list was about 8° - 10' to port. Water was washing through the dock on the port side. A salvage tug alongside the port wall rigged a submersible pump through hatches in the port wingwall and started pumping out the dock at about 1800.

At 0130 on 5 July 1946, after pumping for about 8 hours with a six inch submersible pump, the ARDC 13 was returned nearly to even keel and normal draft. Pumping subsequently was done intermittently, using a handy-billy. An average draft of 9 ft. 11 inches was observed at 1330 this date. The principal reason for leakage was determined to be a small crack through the port shell, about 6 inches below the water line extending from Frame 55 forward to about Frame 18. There was an observed leakage through this crack over about one fourth of its length. This underwater damage was considered to be relatively minor. The dock's generators were started without incident. A portion of the power lines passed through flooded compartments on the port side and were not utilized for providing power to the port side of the dock.

On 8 July 1946, tanks numbers one and seven on the starboard side of the dock were flooded to a depth of about four feet furnishing sufficient list to starboard to place

the crack on the port side above the water line. Minor leakage from wave action only was experienced. The dock dragged anchor during the early afternoon and was resecured by Commander Task Unit 1.2.7 using the same anchor gear.

It was planned to caulk the crack in the port side of the dock during the week of 8 and 15 July 1946. However, due to the heavy swells running in the lagoon during that time it was impossible to hold a working barge alongside for men to work at the crack. The dock also slipped her mooring and went adrift three times during this period, further complicating any work. It was also found that with the dock listed to starboard practically no leakage occurred and the necessity for effecting permanent repairs was lessened when it was decided to leave the dock listed to starboard for Test Baker. Temporary repair only was effected.

The dock was towed into position and anchored in the array on a heading of about 85 degrees true on 13 July 1946. In this position, the starboard or uncracked side of the hull was presented to the center of the target array. Four 24,000 pound anchors were used in securing the dock for Test Baker with two at the bow and two at the stern, using 100 fanthoms of cable for each anchor.

ARDC-13-WILLIAM DAY REHEARSAL EXPLOSION:

For William Day Rehearsal of Test Baker, four M-46 flash bombs were mounted on the top of the starboard wingwall near the bow end of the dock.

These bombs have the following characteristics:

Overall length	48.4 inches
Diameter	8.0 inches
Total weight	51.9 pounds
Weight flash powder	25.0 pounds
Burning time	0.20 seconds

The flash powder has an explosive effect similar to black powder.

The bombs were mounted on a platform located on the starboard A deck at Frame 12. The platform consisted of 3 inch timber planking which was placed across the crane rails and secured by cleats and a cable tie passed under the crane rails. The platform was floored over with one layer of bagged cement. The bombs were placed 4 abreast on this bagged cement, with bags of cement used as separators. Cable ties fastened to the crane rails held the bombs secure. The bombs were detonated by a remote control mechanism.

An examination of the damage after the blast revealed that:

(a) The platform was entirely gone except for a few strands of cable hanging to the crane rails;

(b) Powdered cement was scattered over the starboard forward section of the dock;

(c) The 18 inch exhaust ventilator under the platform was blown thru the A deck. It was considerably dished downward and apparently absorbed and cushioned a good share of the blast;

(d) The concrete deck around the exhaust ventilator and the A deck beam at Frame 12 were fractured;

(e) There was no evidence of fire from the explosion of the flash bomb; and

(f) Damage was entirely confined to about a six foot square area on the A deck and did not affect the use of the dock as a target for Test Baker.

ARDC-13 INSTRUMENTATION FOR TEST BAKER:

Instrumentation for Test Baker consisted of 5 of the steel A frame towers with plunger type scratch gages, three in the Port wingwall and two in the Starboard wingwall. The gage at Frame 12, Starboard side, was not set due to damage received from the William Day Flash Bombs.

ARDC-13-RESULTS OF TEST BAKER:

The ARDC-13 was boarded on the 2nd of August (Baker plus 8 days) by Bureau of Yards and Docks Representatives. There was no apparent evidence of damage resulting from the Baker Test. Slow leakage was taking place through cracks developed during the Able Test and at that time the Port stern section of the dock was awash up to Frame 55. From draft measurements of the ARDC-13 on 24 July, together with estimates made on 31 July and 1 August, the rate of flooding was approximately 25 to 50 per cent of the rate observed prior to listing the craft between tests.

Deflection markings were noted on the gage at Frame 27, Starboard side, which indicated that the tip of the wall had moved 2.5 inches to port, and 1.25 inches to starboard, relative to its neutral position. Radiological conditions prevented the rescue of the record plates.

The following intensities of radio-activity were observed on the ARDC-13 on 2 August 1946:

Dock floor, at bow and stern	6	roentgens per 24 hrs.
Dock floor, amidships	9	" " " "
"A" Deck, (top) Starboard	9	" " " "
Within Starboard wingwall, "B" Deck	4	" " " "
Approximate dock average	7	" " " "

Radiological contamination allowed the presence of personnel only from 16 to 30 minutes per day. For this reason, salvage operations could not be undertaken without endangering the health of personnel.

ARDC-13-DISPOSITION:

During the night of 4 August 1946, the dock capsized to Port due to the flooding of the Port side pontoons and wingwall. After capsizing, the dock remained afloat with

its starboard forward section remaining above the surface. On 5 August 1946, the Director of Ship Material recommended to Commander Joint Task Force ONE That the ARDC-13 be sunk by demolition charges. This was carried out by Commander Task Unit 1.2.7, at 1735, 6 August 1946.

B L A N K

ENCLOSURE (1)

ARDC-13 DRAFTS AT VARIOUS STAGES OF THE TESTS

Date	Time	Drafts, feet					Trim by Stern	List to Port
		FRAME #6		FRAME #57				
		Port	Stbd.	Port	Stbd.	Avg.		
TEST ABLE								
1 July	0900	9.5	9.5	9.5	9.5	9.5	0	0
2 July	1500	10.5	9.5	12.0	10.0	10.5	16'	41'
3 July	0930			14.5				
3 July	1500	13.0	6.5	17.5	9.5	11.5	42'	4° 55 '
4 July	1630					13.2		8° 10 '
POST ABLE REPAIRS								
5 July	1330					9.9	4'	40'
6 July	1300					9.7	--	--
TEST BAKER								
22 July	--	8.0	11.5	8.3	11.7	9.9	3'	2° 21 ' a
1 August	1200	10.5bb	9.0 b	14.0bb	13.0 b	11.6	42'	51'
2 August		11.0	9.8	14.5	13.3	12.1	39'	49'
4-5 August			Capsized					

a. List to starboard, with starboard ballast.
b. Estimated through ships glass.

YOG 83. The YOG 83 was built as a gasoline barge by the Concrete Ship Constructors of National City California for the Maritime Commission. It was completed in January 1944, and had a displacement of 20,960 tons, an overall length of 375 feet, beam of 56 feet, and a maximum draft of 29 ft.

Prior to the tests, this craft was in service in the Pacific as a gasoline barge. The tanks were butterworthed in preparation for the tests, and a number of steel pallets were tack-welded to the top layer of main deck reinforcing steel, exposed at various points for this purpose, and to steel plates and framework, in order to facilitate the display by Army personnel of ordnance and chemical warfare service items.

Prior to Test Able, there was minor damage to forecastle and poop deck houses, incurred when other vessels came alongside for fuel, and the guard railings were similarly damaged and in part removed. Hold No. 4, starboard, was reported to have a crack in the exterior shell about 10 feet below the waterline in a ballasted state, and was regarded as not watertight against the sea. As a matter of record, this hold was not butterworthed when it was found impracticable to pump it dry.

The craft was maintained at Bikini in utmost cleanliness. Dark spaces had been painted white, valve handles painted in distinguishing colors, and the galley area was free from spilled grease and dirt.

YOG-83-RESULTS OF TEST ABLE:

Preliminary inspection of the YOG 83 indicated that the craft has sustained superficial damage only.

Detailed inspection of the YOG 83 revealed that the damage was entirely confined to the top side. Items noted are listed below:

(a) Draft remained unchanged from pre-test draft;

(b) Roof dished downward slightly on amidships deck house or pump room causing cracks in beams at the center and near the ends;

(c) Roof covering on wheelhouse blown off and wooden siding on tankhouse just below wheelhouse blown in;

(d) Steel frame life raft rack on starboard poop deck pulled loose and upset;

(e) Few blast burns on poop deck frame structures;

(f) Wheelhouse and tankhouse frame pushed slightly forward;

(g) Ladders to wheelhouse loosened at upper connections;

(h) Some paint charred on forecastle;

(i) Canvas covers blown off 40 MM guns on forecastle; and

(j) Top of signal mast above yardarm blown off.

The YOG 83 was moored in the target array for Test Baker on 14 July 1946.

YOG-83-RESULTS OF TEST BAKER:

There was no apparent damage to this craft resulting from Baker Test.

Intensities of radiation on 2 August 1946 were measured from 10 to 18 roentgens per day alongside the hull, with lowest readings at the bow and stern and the highest reading near the midship section. This intensity would safely allow personnel aboard less than 15 minutes each day.

YO-160. This craft was built in 1943 as a fuel oil barge by the Concrete Ship Constructors, of National City, California for the Maritime Commission. Its displacement was 10,960 tons, overall length 375 feet, and beam 56 feet.

Prior to the tests, it was in active service as an oil barge in the Pacific, and the forecastle and poop deck houses, supports, and the guard railings had been extensively damaged when other ships had come alongside for fuel.

The holds, prior to Test Able, were reported entirely tight against the sea. Upon examination at Bikini, all the cargo tanks contained small amounts of oil, apparently not contaminated by water, the residual after attempts to pump the tanks dry, except the two forward tanks which carried salt water ballast.

There was evidence of rust, debris, improperly stowed stores, and the galley area was cluttered and greasy, but the basic hull structure appeared free from defects, and the craft was considered ready as a hull for test.

YO-160-TEST ABLE RESULTS:

On re-entry to the lagoon the YO 160 was found to be radioactive above the daily tolerance. Accordingly, on 2 July 1946 it was towed out of its position in the center of the array and was secured to a spare mooring buoy in the lagoon between ENYU and BIKINI Islands, at a remote distance from other ships.

On 4 July 1946, the YO 160 was boarded with two radiological monitors and was found to be sufficiently active radiologically to preclude remaining on board for more than 5 hours, with isolated spots still higher in radioactivity.

On 5 July 1946, the barge was again boarded with monitors, a photographer and an inspection party, prepared to make a complete physical inspection of the topside. The barge was found to be radioactive with a twelve hour

tolerance. A detailed inspection was completed in about two hours.

The damage to the barge from the main deck and below was superficial only. A small amount of concrete was scaled from the main deck just forward of the after deck house. This scaling is believed to have been caused by an intense fire which occurred in the area of the after deck house, the wheel house and the tank house.

The hatches on the main deck, deck valves, deck concrete, and the concrete hull all appeared to be intact and undamaged. The draft at the stern was noted to be 22 feet, the figure observed prior to the test.

The structures above the main deck were almost completely demolished, considered a direct result of the blast. The poop deck was fractured over its entire area. The wooden frame pilot house was consumed by fire. The deck house which contained the pump engines, line valves and power plant were crushed in with sections scattered over the deck. The catwalks were ripped assunder and partially destroyed by fire. The after portion of the forecastle was crushed inward but the forecastle deck was almost intact. It is improbable that any personnel aboard the YO 160 would have survived the blast, the subsequent fire, or ultimately the radioactivity.

The fire in the poop deck house was confined almost entirely to the crews living spaces, the Captain's spaces, galley and mess hall, and refrigeration spaces. The generator room, the generators themselves, and prime movers, in the forward amidships section of the deck house and the steering engine room were untouched by fire but were damaged somewhat from chipped concrete and debris when the deck above was smashed downward.

On 9 July 1946, the YO 160 was declared radiologically clear and Commander Task Group 1.2 was notified that the barge could be moved into the target array for Test Baker.

On 9 July 1946, the YO 160 was secured alongside the USS ARKANSAS preparatory to mooring in final target array position. Due to swells running in the lagoon at the time, a camel between the ARKANSAS and the YO 160 punched a hole in the hull of the barge just below the waterline on the after port side and the barge took on water. The YO 160 was towed clear of the target array having a 45 degree list to port and with the main deck awash. The barge was beached in the beaching area at the north west tip of ENYU ISLAND. The barge was subsequently dragged off the beach, a temporary patch secured over the hole, which was about one foot in diameter, and the barge was counterflooded in the starboard compartment to bring it to an even keel. It was trimmed down at the stern with draft of 21 ft. forward and 28.5 ft. aft. It was placed in the target array for Test Baker on 20 July 1946.

YO-160-RESULTS OF TEST BAKER: The YO-160 sank immediately after the blast. The following information of the sequence of events just after the blast has been deduced by the Bureau of Ships Group from tower camera pictures from both Bikini and Enyu Islands, and pi tures taken by PBM "U". The pictures discussed here are on roll 31(R)-275. In picture No. 0, the YO-160 is clearly visible and has not yet suffered any apparent effects from the burst. Picture No. 1 shows the cloud chamber. Picture No. 2 (plus six seconds) shows the YO-160 being lifted on a conical mound of water, the stern inclined upward towards the ascending column of water and the lower portions of the hull shrouded in a light mist. In Picture No. 3, all but the upper bow of the YO-160 is obscured in the light mist that surmounts the mound of water. In Picture No. 4, the upper part of the hull of the barge is again visible, still inclined stern upward toward the now descending column of water and dense spray from the base of the column. In Picture No. 5, the after three quarters of the length of the YO-160 has been engulfed and that portion of the bow which is showing is inclined upward. In Picture No. 6 (plus 18 seconds), the barge has disappeared completely.

It is surmised from the discussion above that the barge was fractured by the water pouring on it from above.

STEEL PONTOON BRIDGE SECTION (2 x 6): The 2 x 6 pontoon bridge section was the standard Yards and Docks pontoon assembly made up of T-6 steel pontocns, two pontoons wide and six pontoons long.

The section, moored to the stern of the ARDC 13 for Test A, was turned up side down as a result of the bomb explosion. It was structurally intact and watertight, and the only noticeable effect was the general dishing of the steel plates between the lines of internal bracing. This superficial damage in no way reduced the effectiveness of the structure.

The section was utilized as a landing float for the movie exchange between tests, and on 22 July 1946 was again moored astern of the ARDC 13 for Test Baker.

The section was not apparently affected by the Baker Test. It was ultimately carried below the surface when the ARDC-13 capsized and settled by the stern. Visual inspection of the section was made on 2 August 1946. Radiological contamination prevented the boarding of the pontoon or the undertaking of salvage operations.

S E C R E T

ARDC-13 CRACK SURVEY

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S E C R E T

Appendix A

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Appendix A

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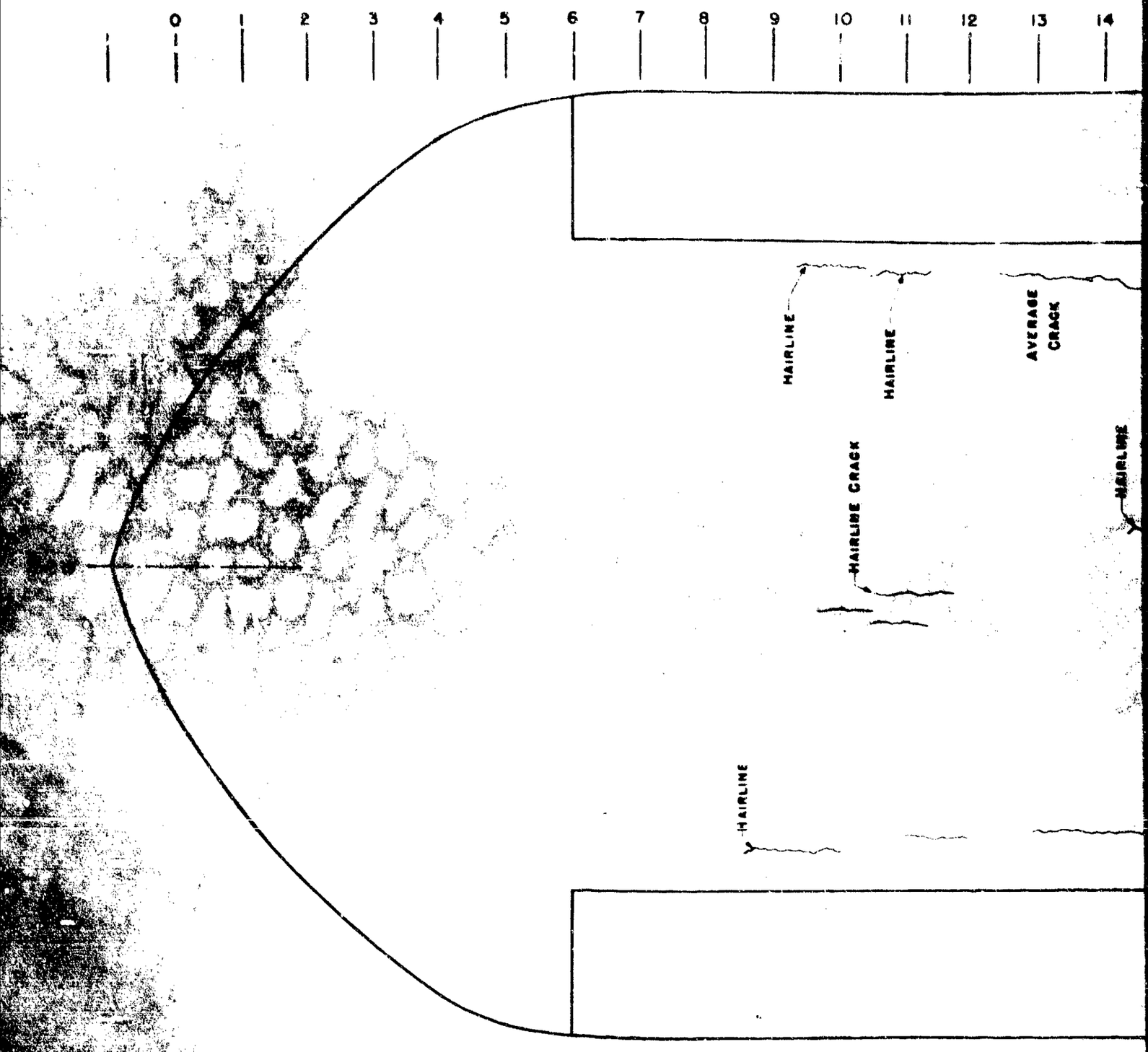

DOCK FLOOR "C" DECK LEVEL

ARDC - 13

CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

DOCK FLOOR "C" DESK LEVEL

ARDC - 13

CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

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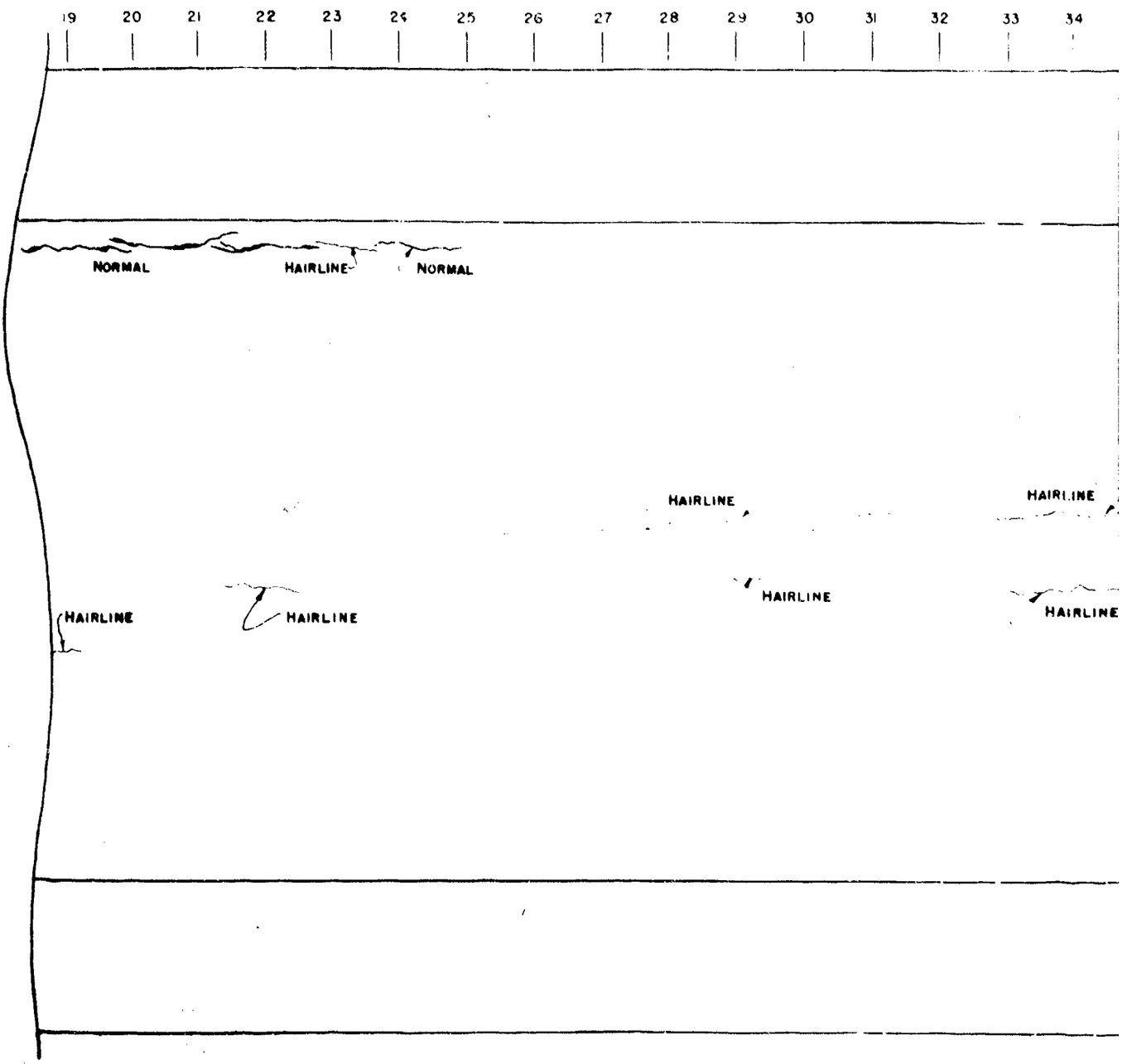
DOCK FLOOR -- "C" DECK LEVEL

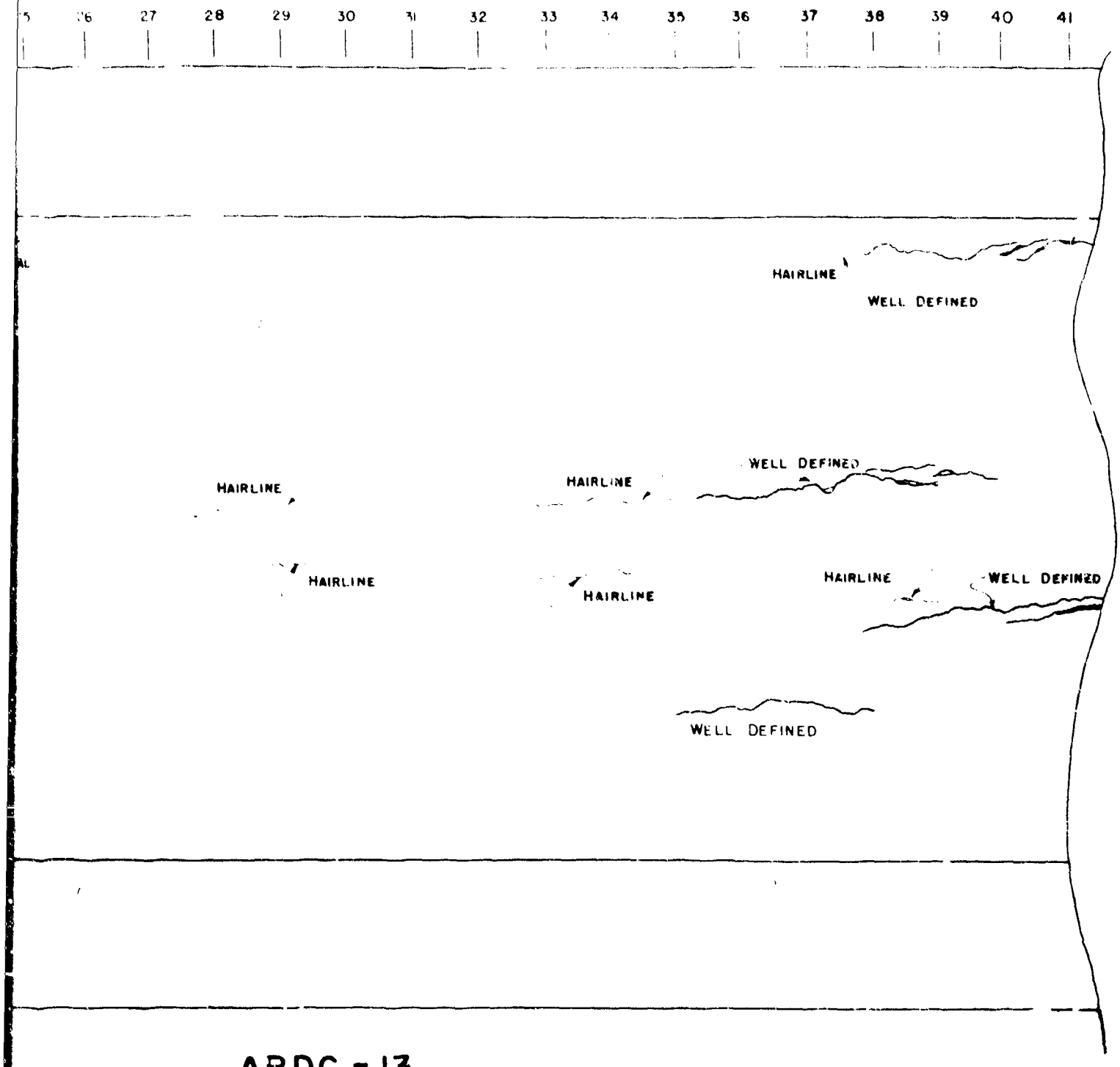


ARDC - 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

DOCK FLOOR – "C" DECK LEVEL



ARDC – 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

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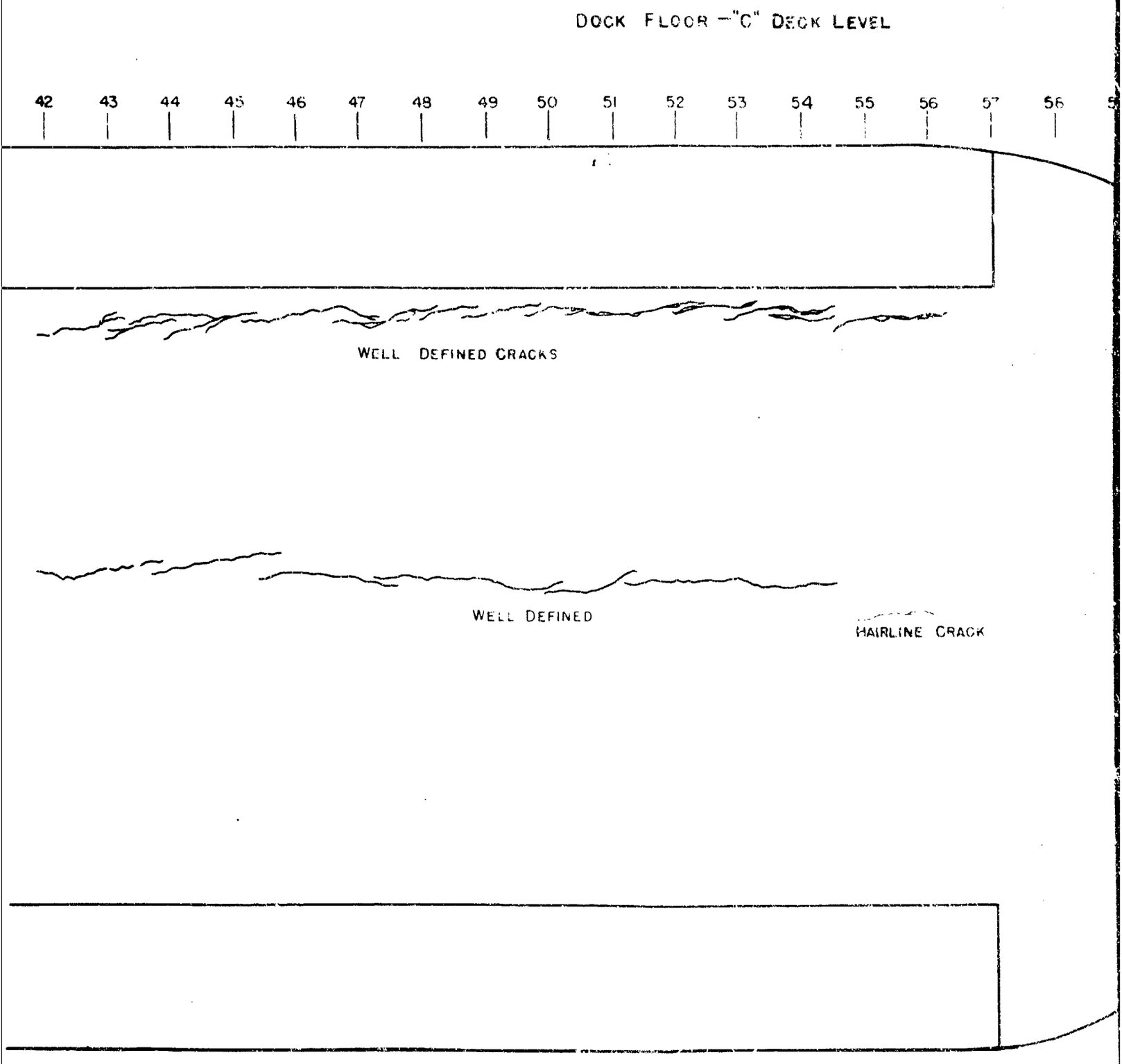
2

DOCK FLOOR — "C" DECK LEVEL



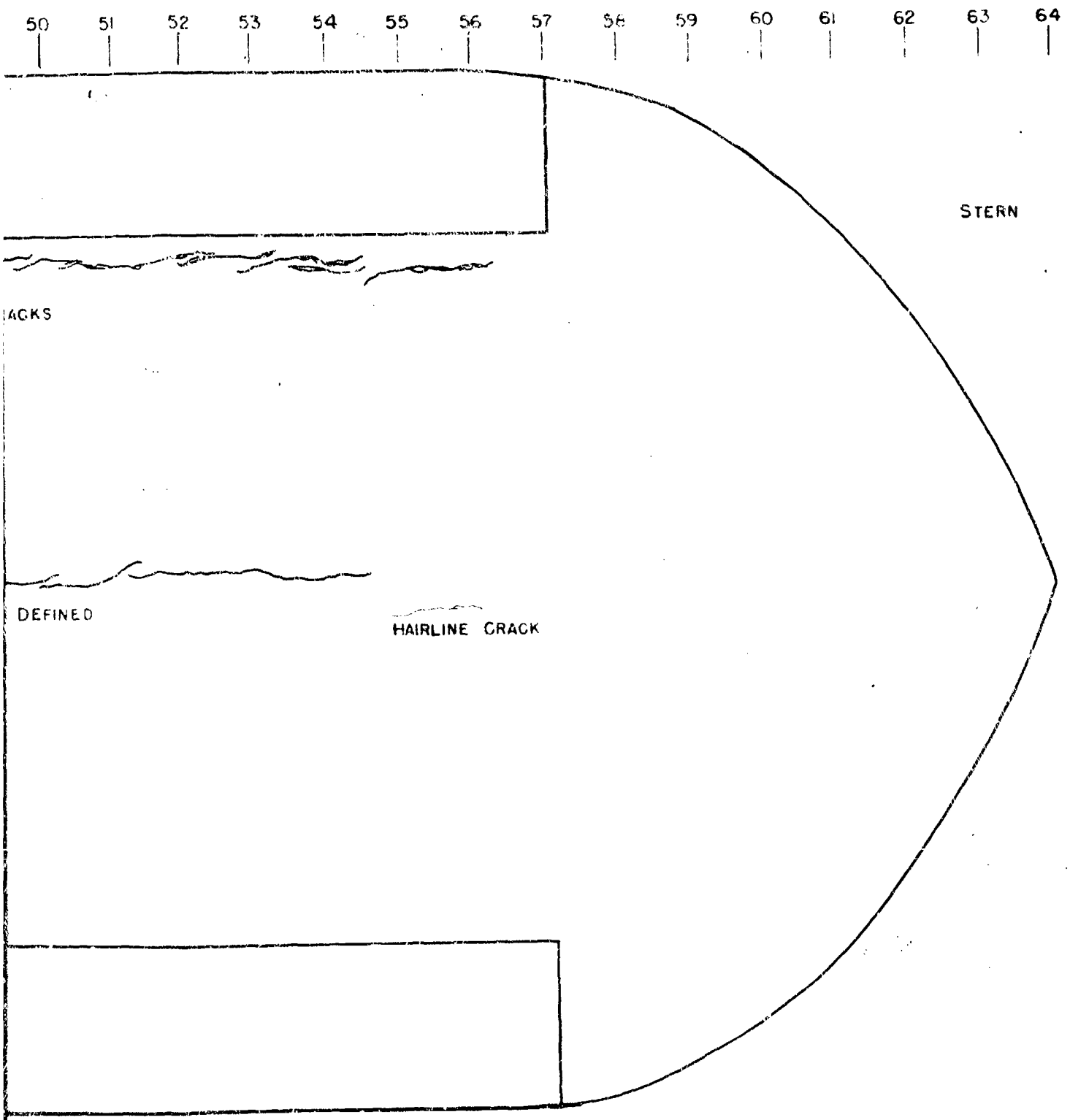
ARDC - 13

CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

DOCK FLOOR — "C" DECK LEVEL

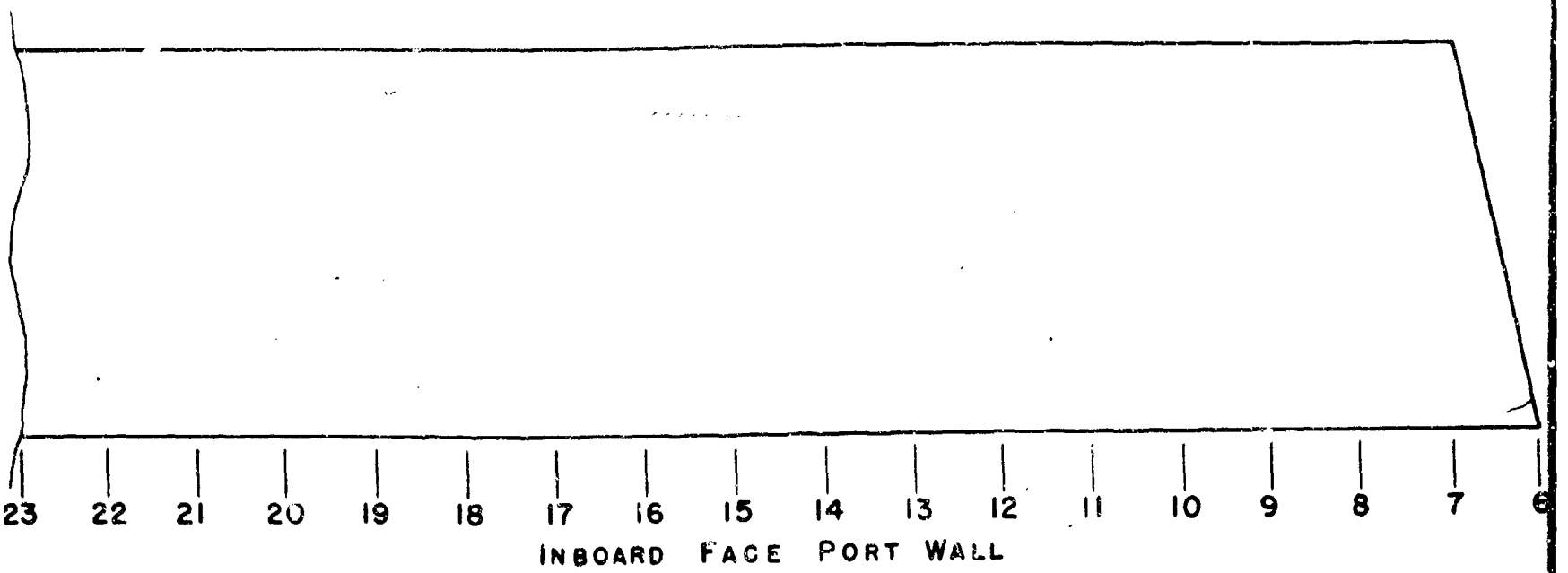


ARDC – 13
CRACK SURVEY AFTER TEST ABLE

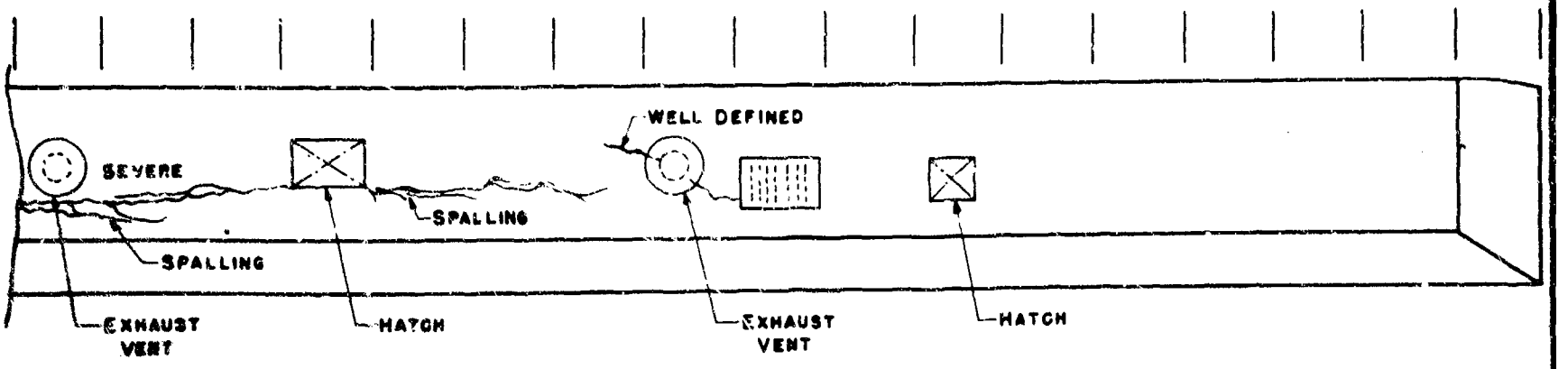
10 0 10 20

GRAPHIC SCALE IN FEET

2

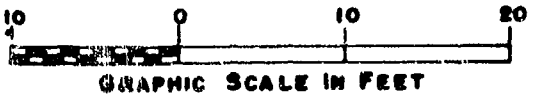


INBOARD FACE PORT WALL

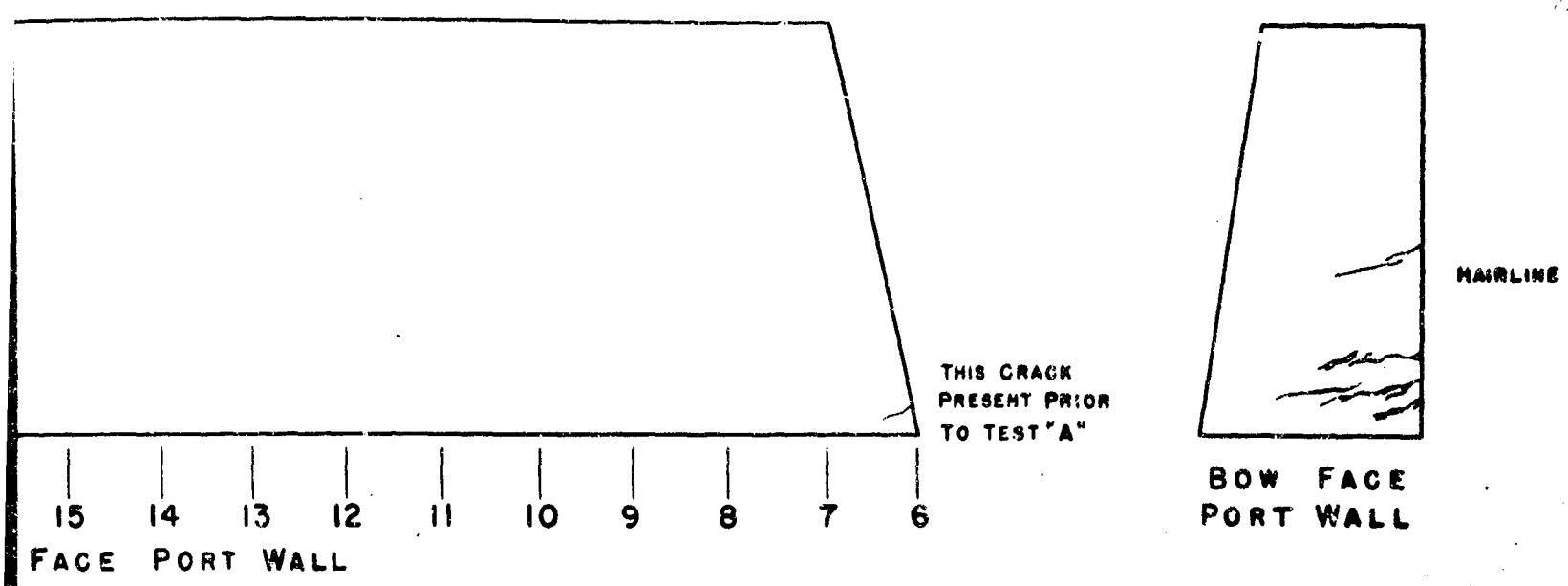


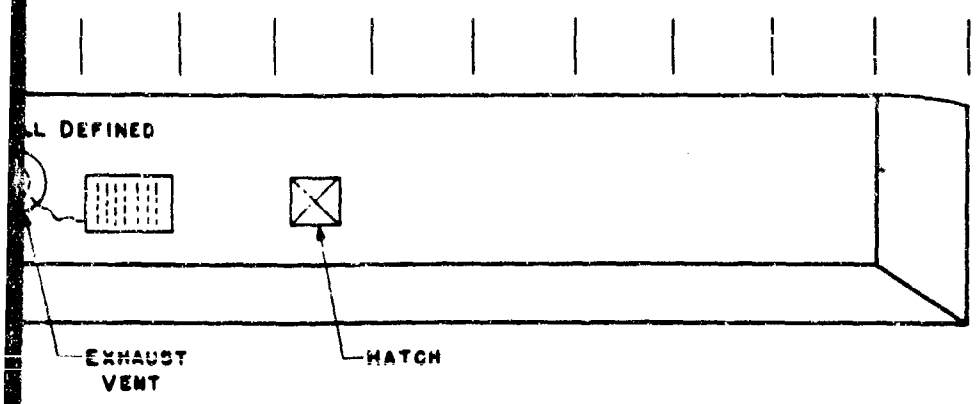
"A" DECK PORT WALL

ARDC - 13
CRACK SURVEY AFTER TEST ABLE



GRAPHIC SCALE IN FEET





ECK PORT WALL

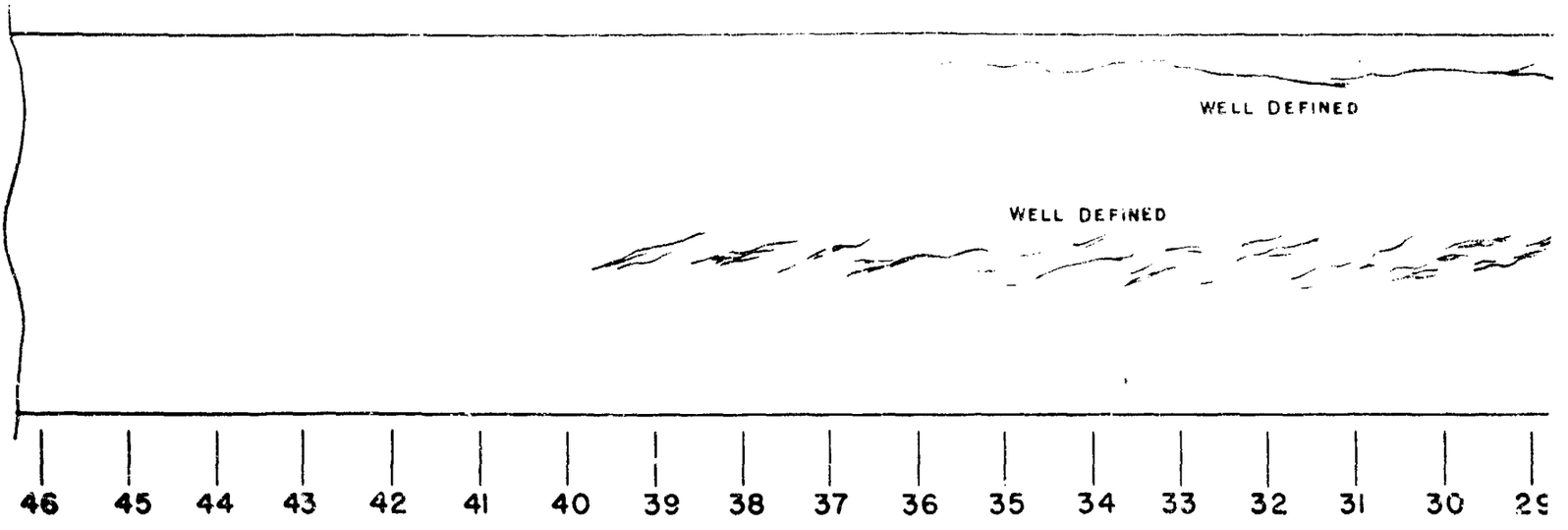
ARDC - 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20
GRAPHIC SCALE IN FEET

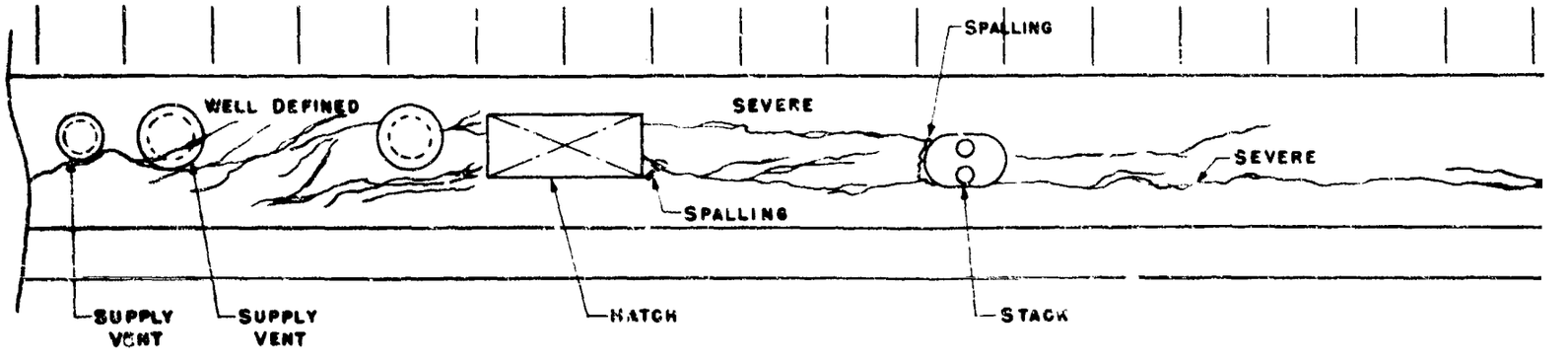
SECRET

APPENDIX A, ENCLOSURE 6 TO DIRECTOR
SERIAL 001500 PAGE 6 OF

2



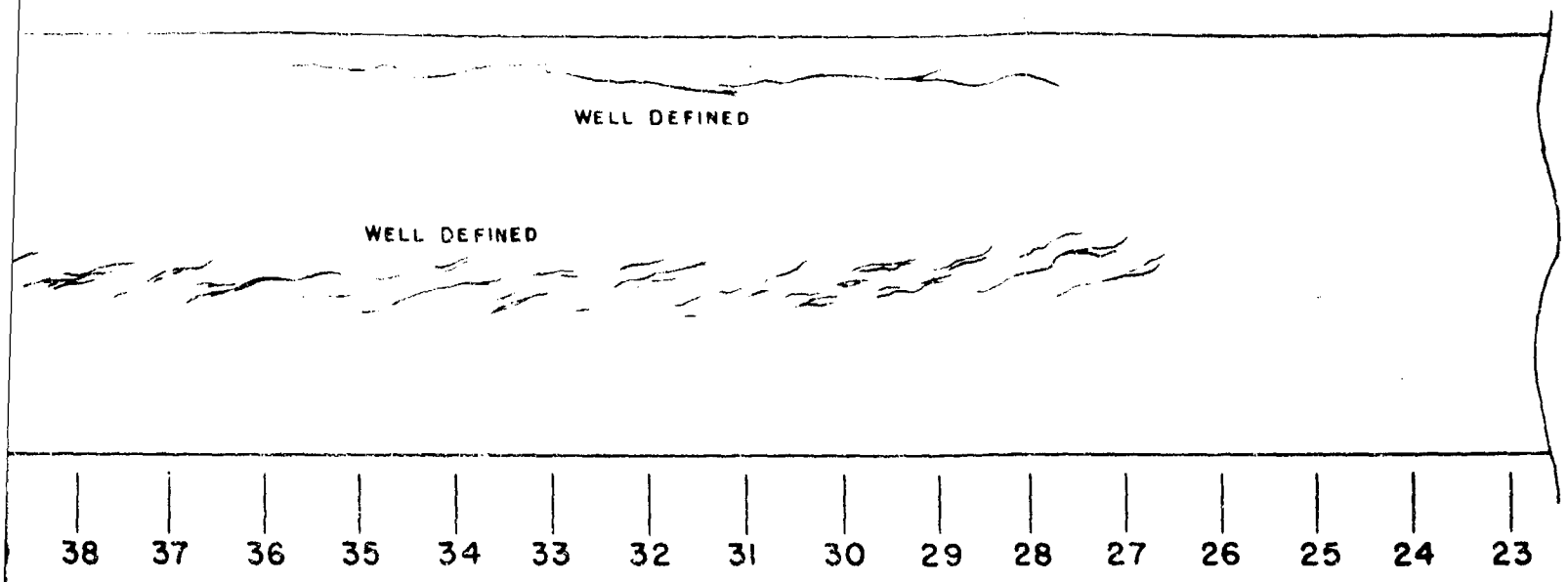
INBOARD FACE PORT WALL



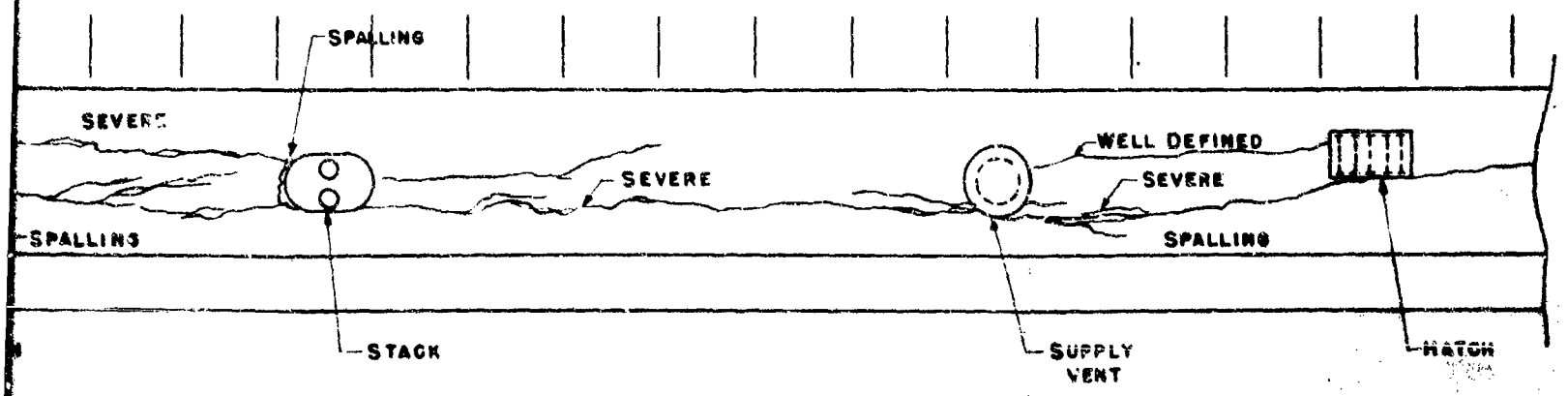
"A" DECK PORT WALL

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

GRAPHIC SCALE IN FEET



INBOARD FACE PORT WALL



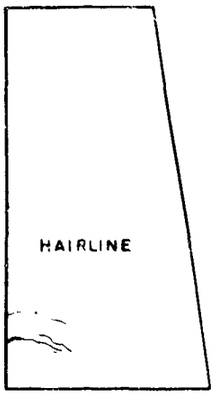
"A" DECK PORT WALL

ARDC - 13

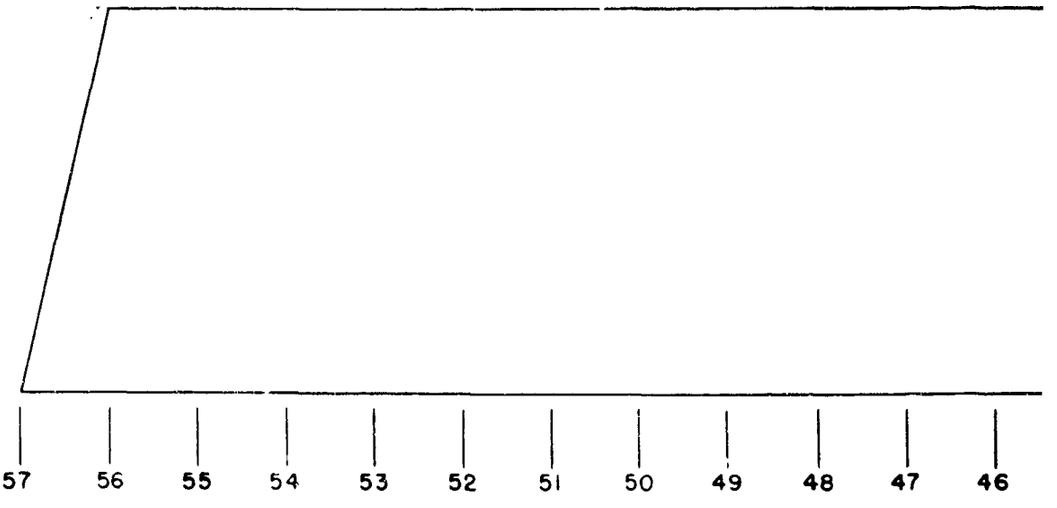
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

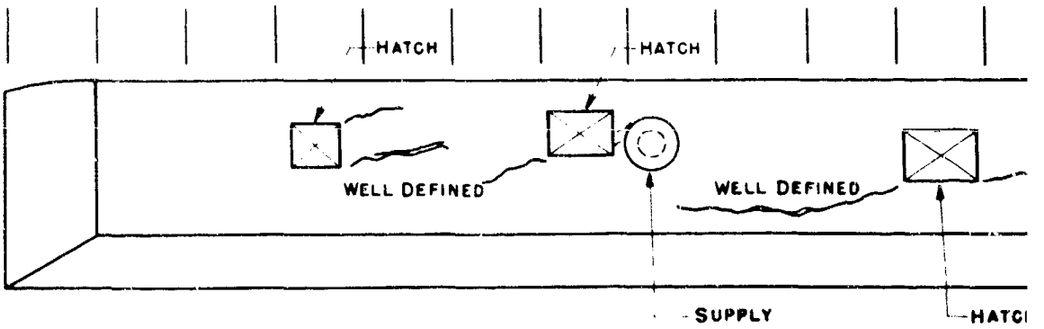
GRAPHIC SCALE IN FEET



STERN FACE
PORT WALL



INBOARD FACE PORT WALL

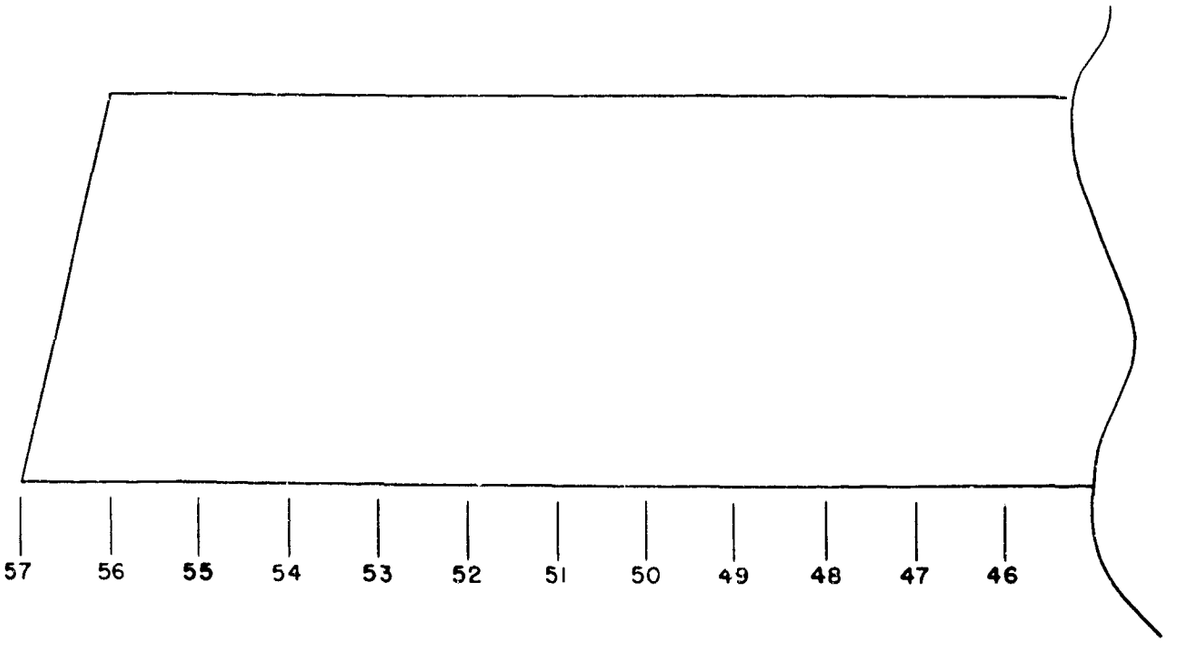


"A" DECK PORT WALL

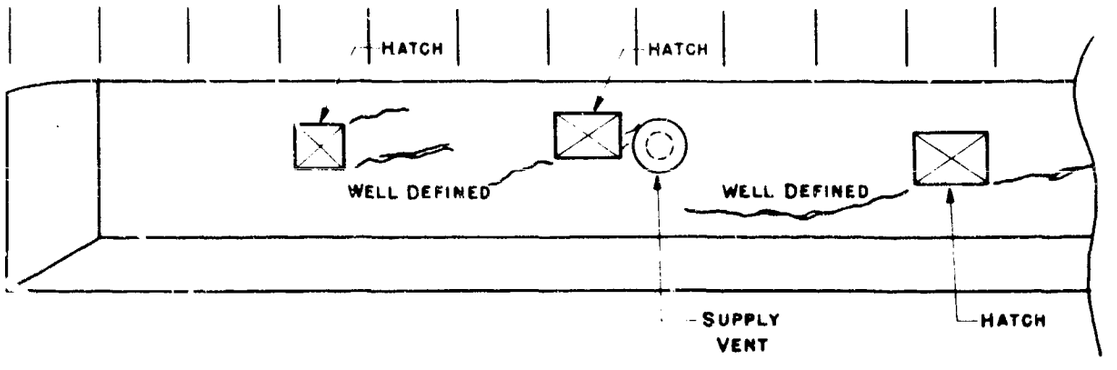
ARDC -13
CRACK SURVEY AFTER TEST ABLE

GRAPHIC SCALE IN FEET

APPENDIX A, ENCLOS
SERIAL 0015



INBOARD FACE PORT WALL



"A" DECK PORT WALL

SECRET

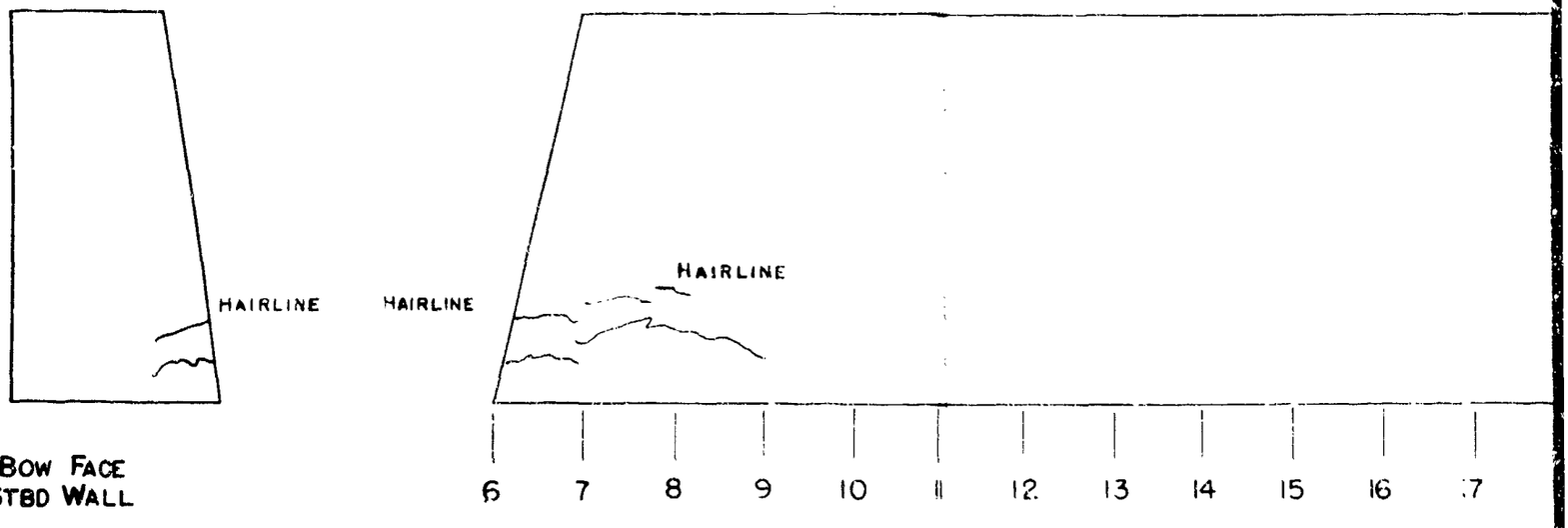
ARDC -13

RACK SURVEY AFTER TEST ABLE

10 0 10 20

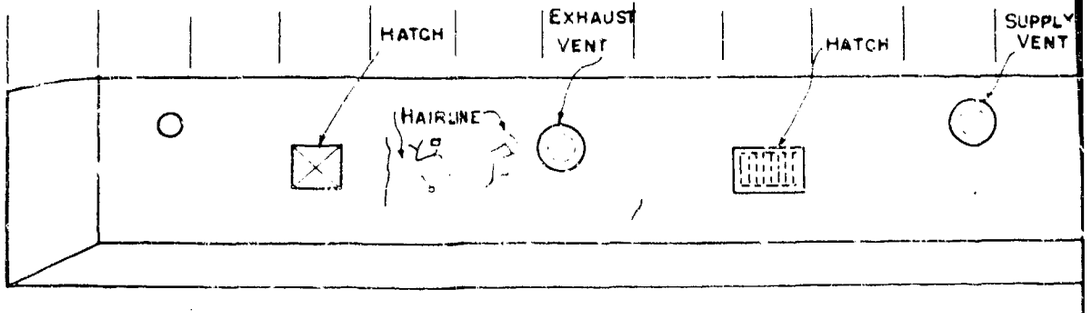
GRAPHIC SCALE IN FEET

2



BOW FACE
STBD WALL

INBOARD FACE STARBOARD WALL



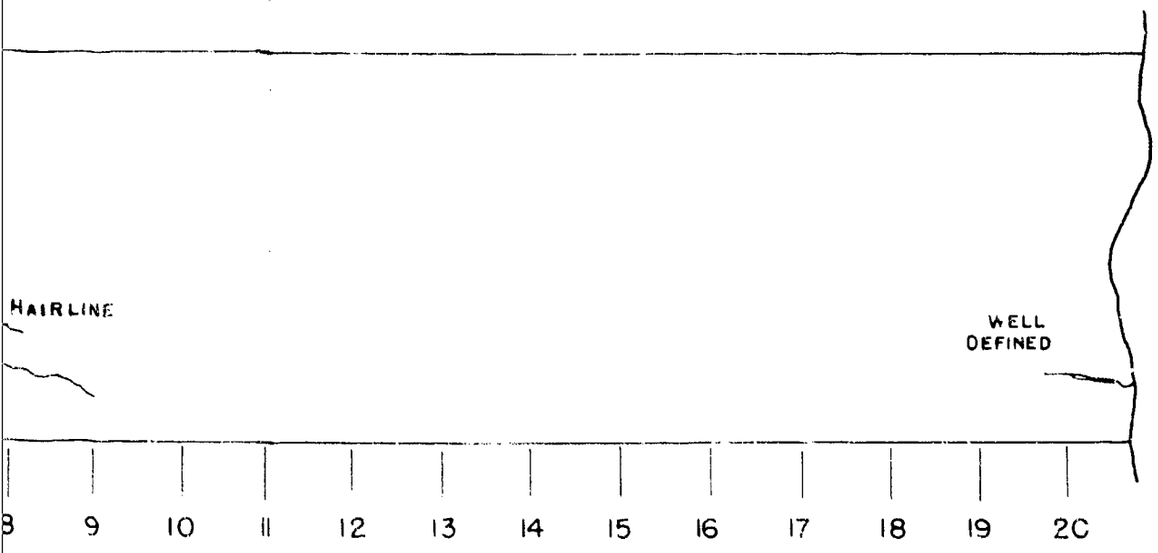
A DECK STARBOARD

ARDC- 13

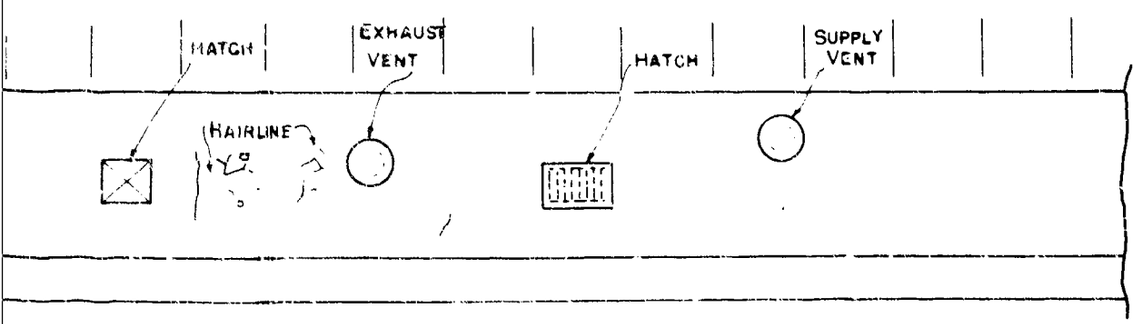
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET



INBOARD FACE STARBOARD WALL



A DECK STARBOARD

ARDC- 13

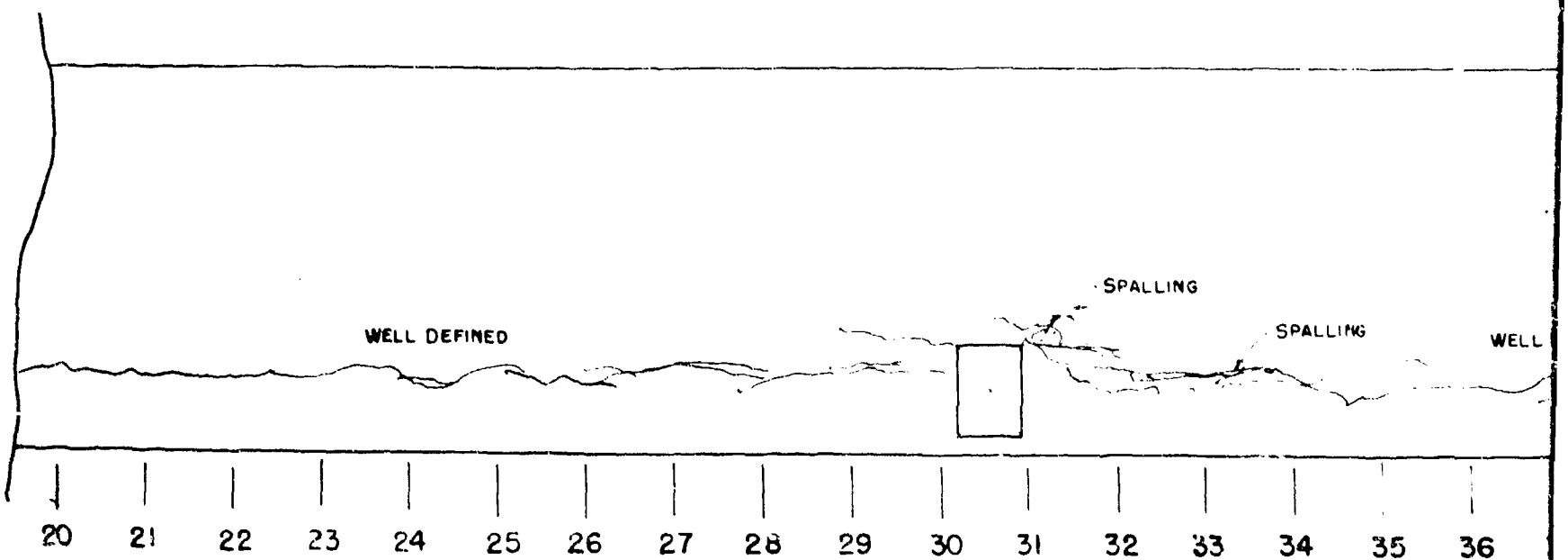
RACK SURVEY AFTER TEST ABLE

10 0 10 20

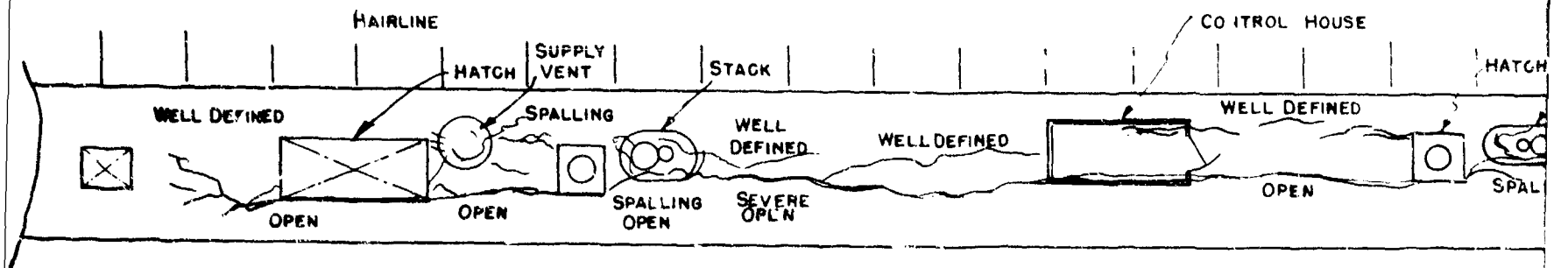
GRAPHIC SCALE IN FEET

2

1



INBOARD FACE STARBOARD WALL

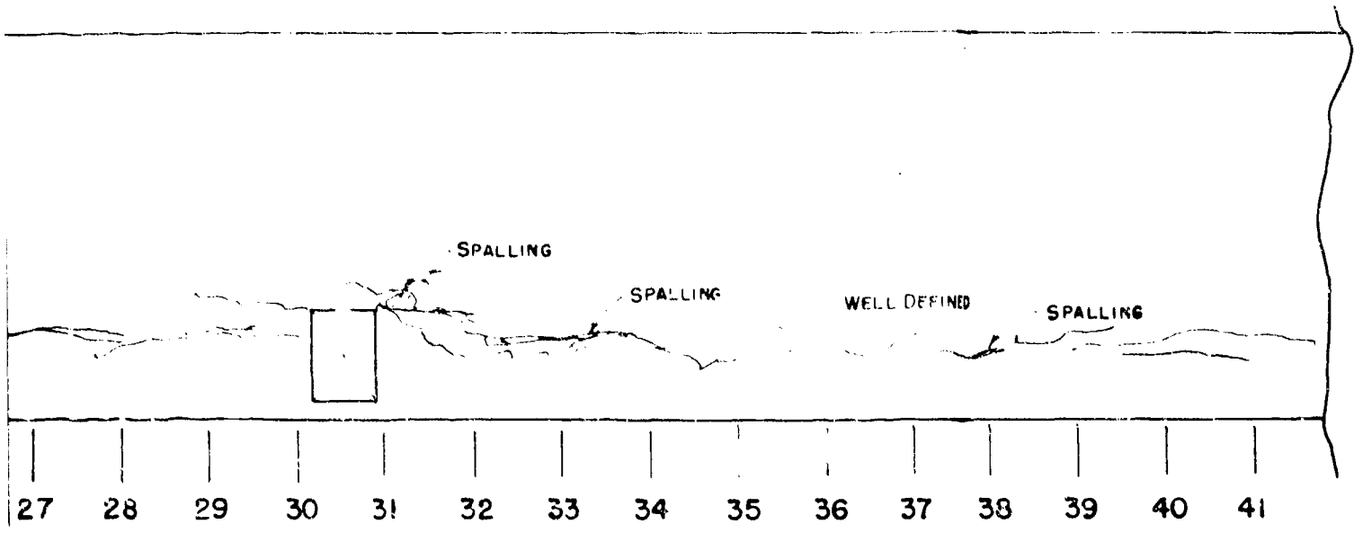


A DECK STARBOARD WALL

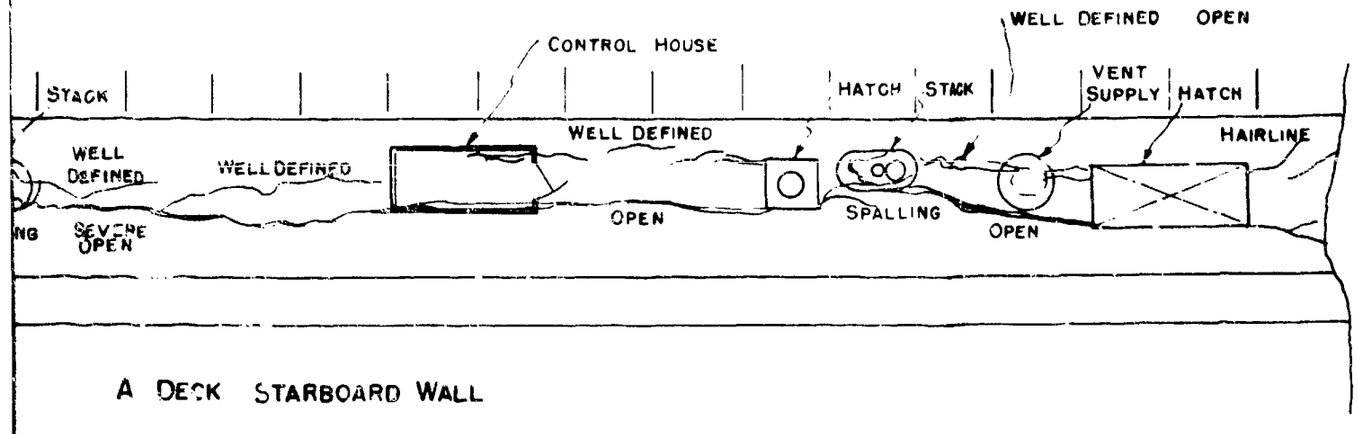
ARDC-13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET



INBOARD FACE STARBOARD WALL

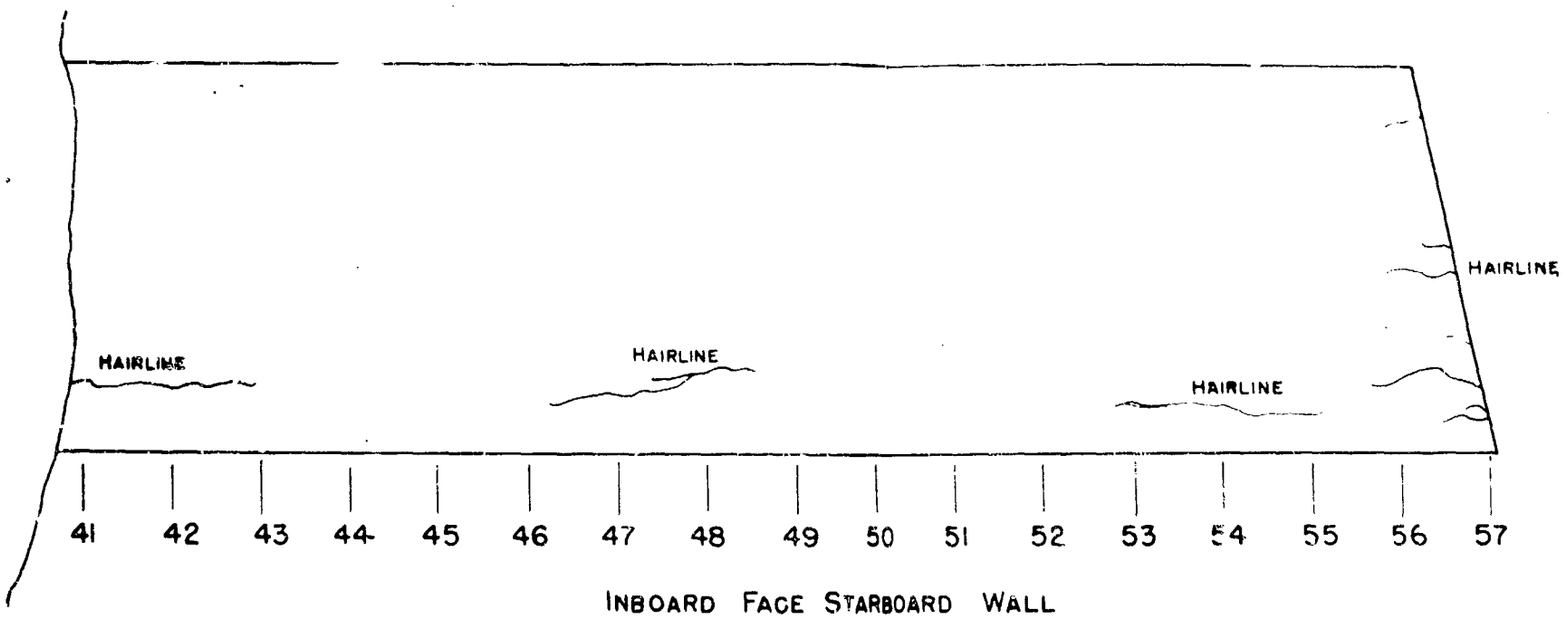


A DECK STARBOARD WALL

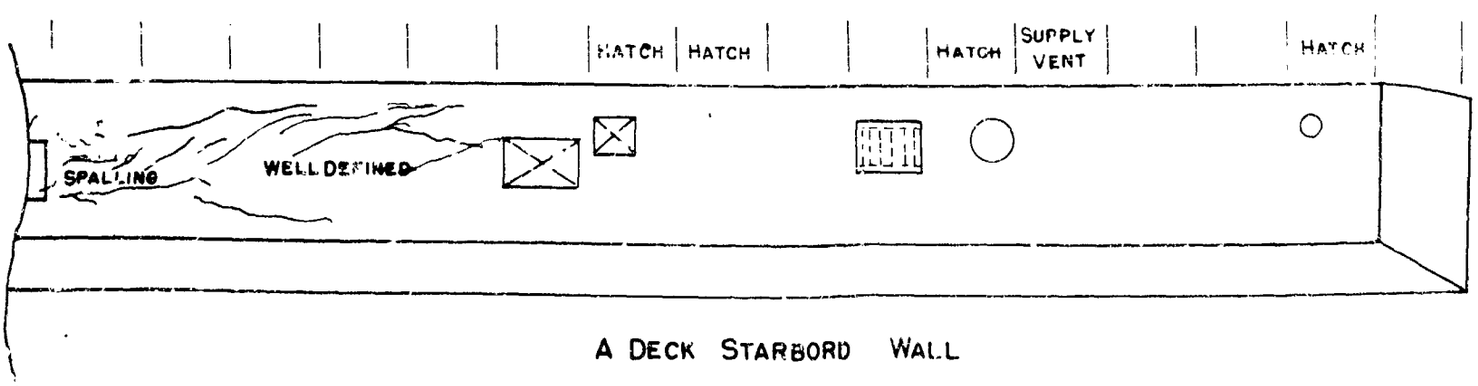
ARDC-13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET



INBOARD FACE STARBOARD WALL

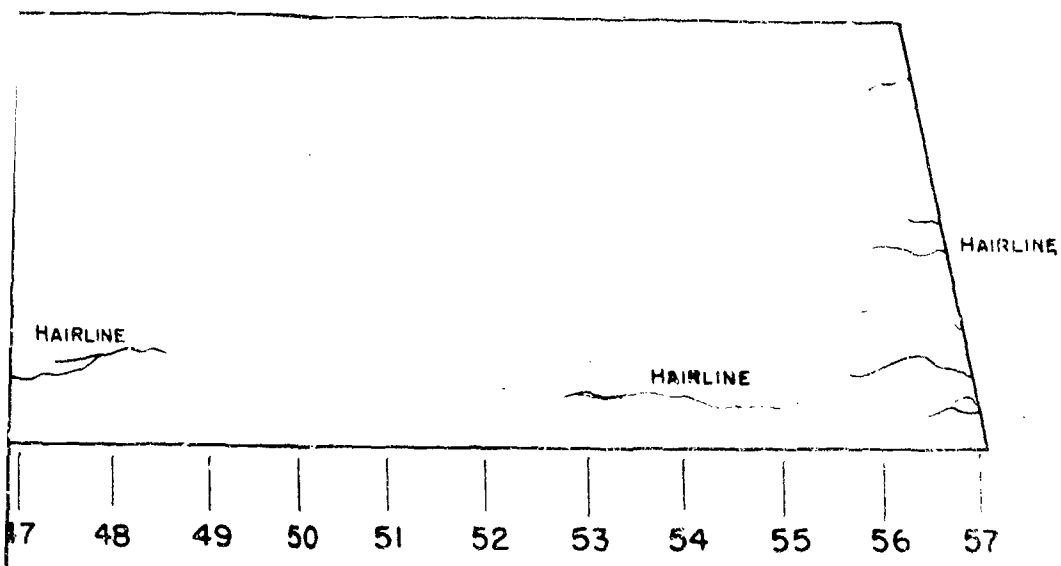


A DECK STARBORD WALL

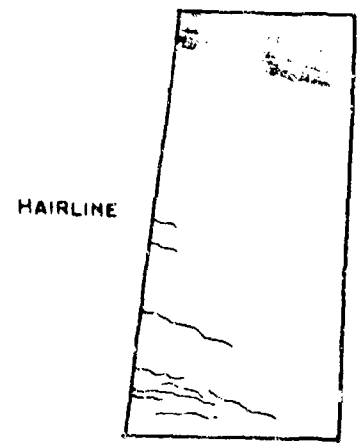
ARDC – 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

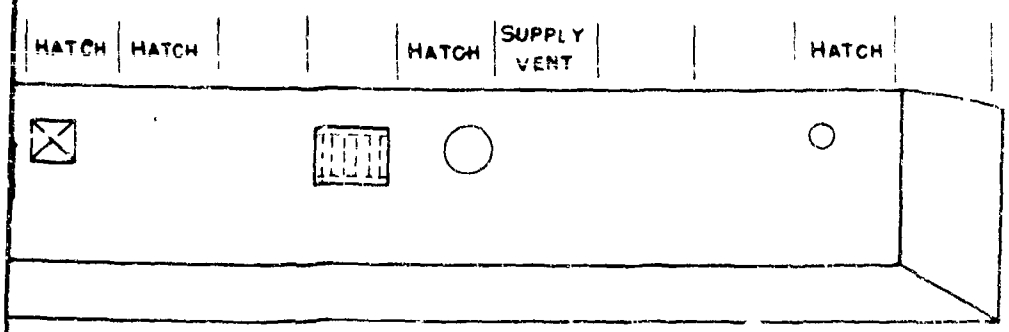
AP



INBOARD FACE STARBOARD WALL



STERN FACE
STBD WALL

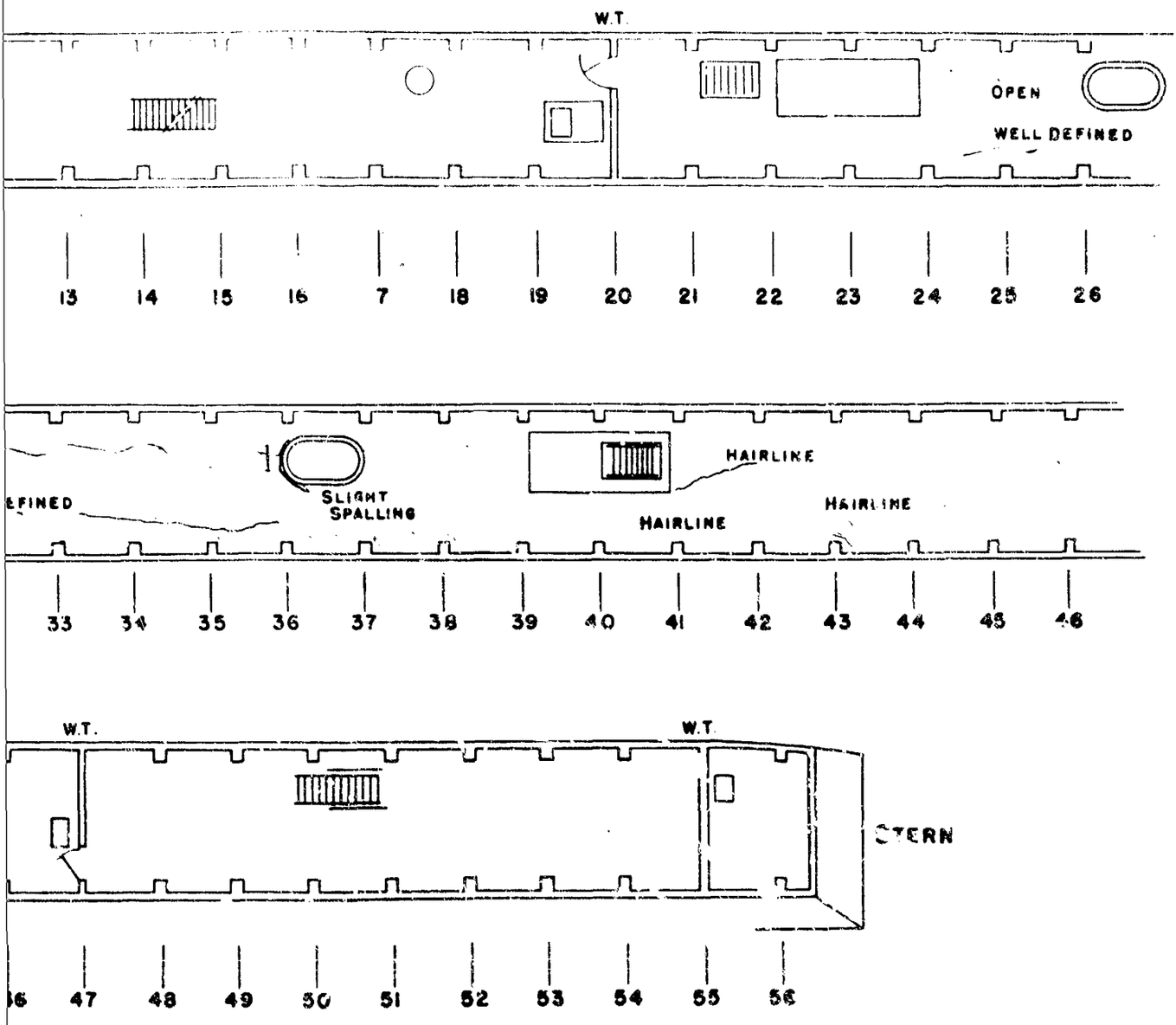


A DECK STARBORD WALL

ARDC — 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

2



"B" STARBOARD WALL

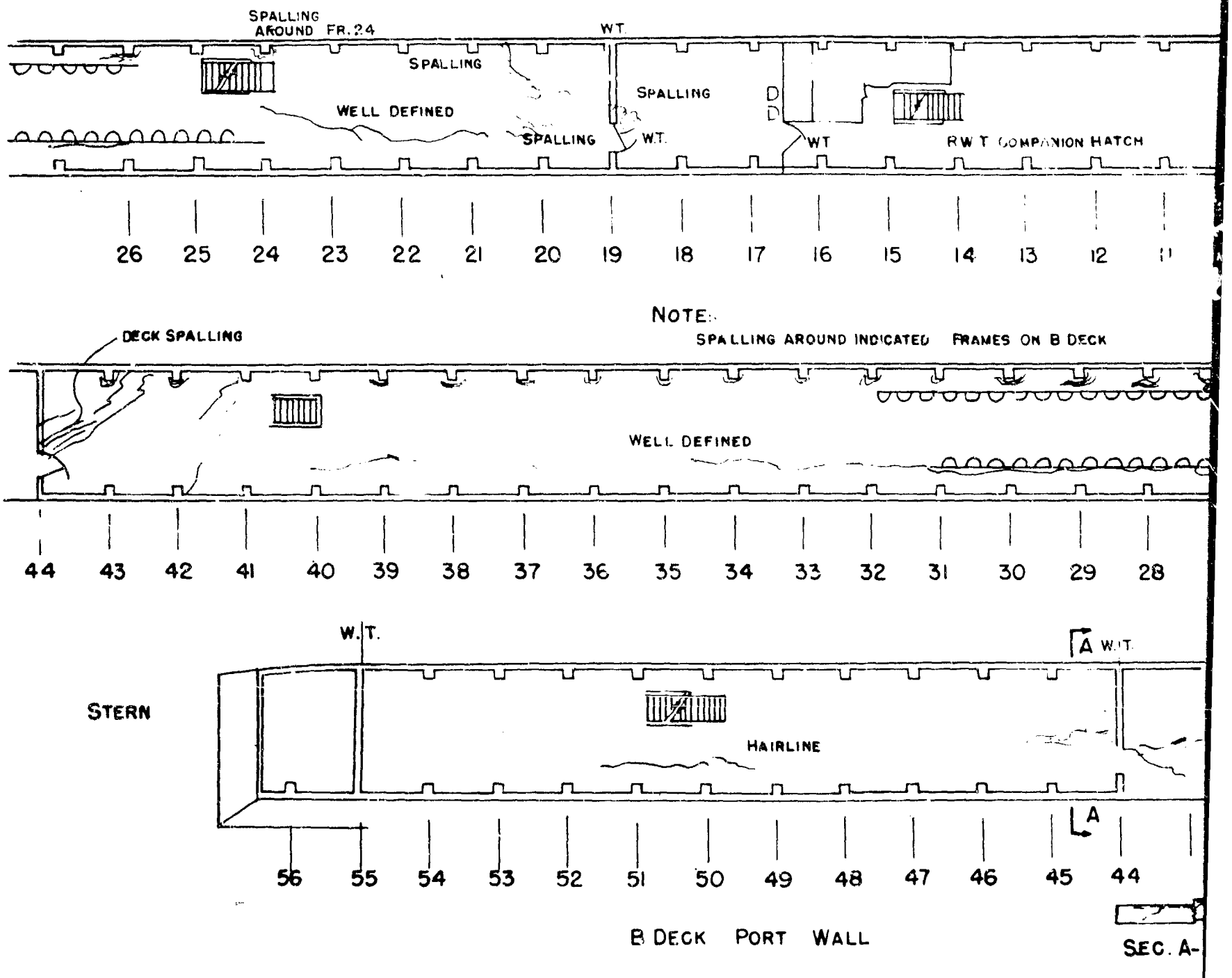
ARDC - 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

SECRE

2

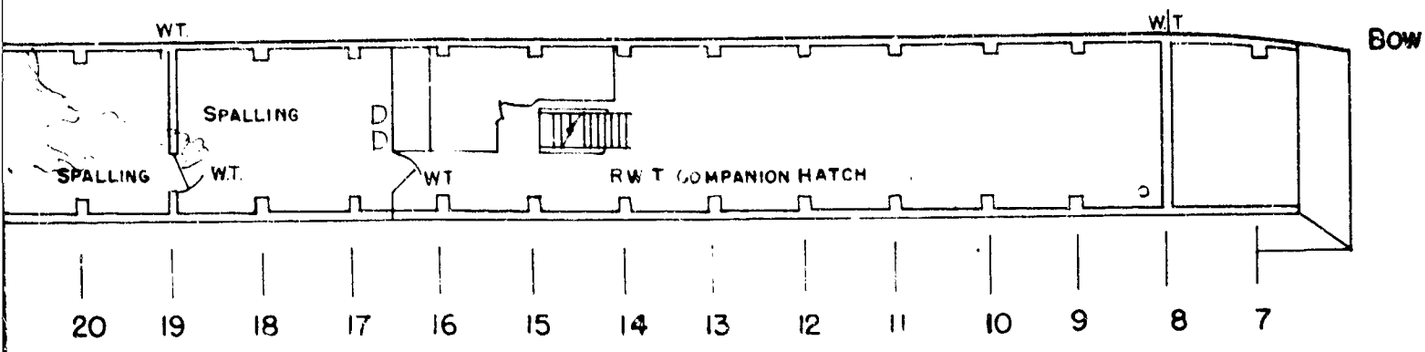


ARDC— 13

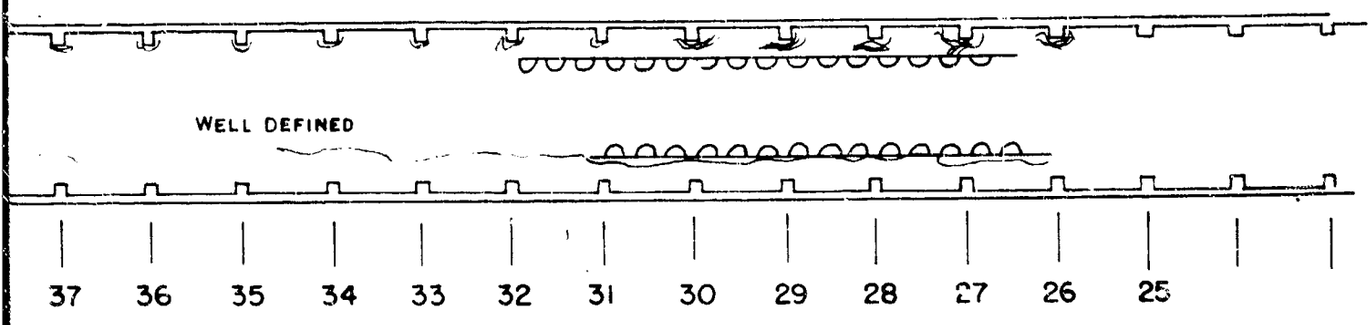
CRACK SURVEY AFTER TEST ABLE

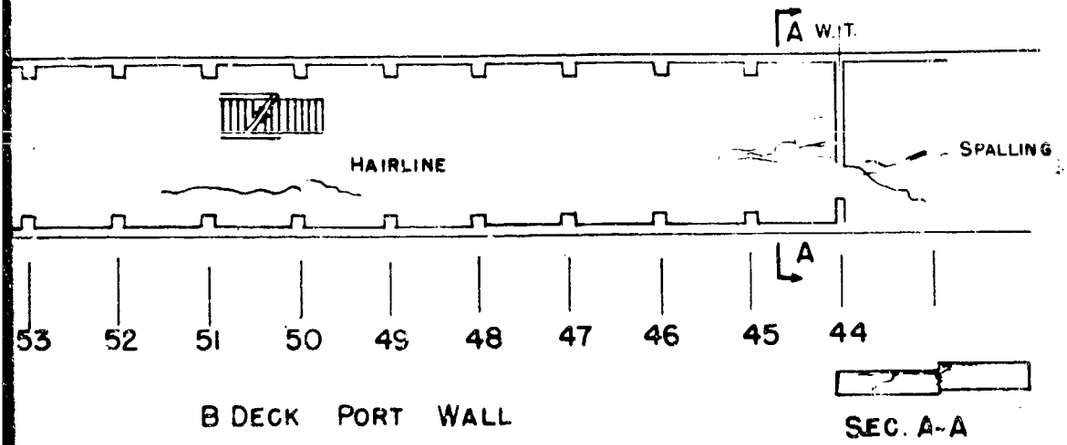
10 0 10 20

GRAPHIC SCALE IN FEET

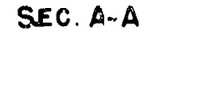


NOTE:
SPALLING AROUND INDICATED FRAMES ON B DECK

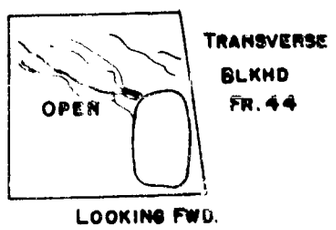


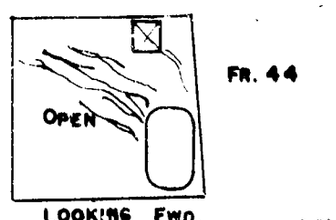


B DECK PORT WALL



SEC. A-A





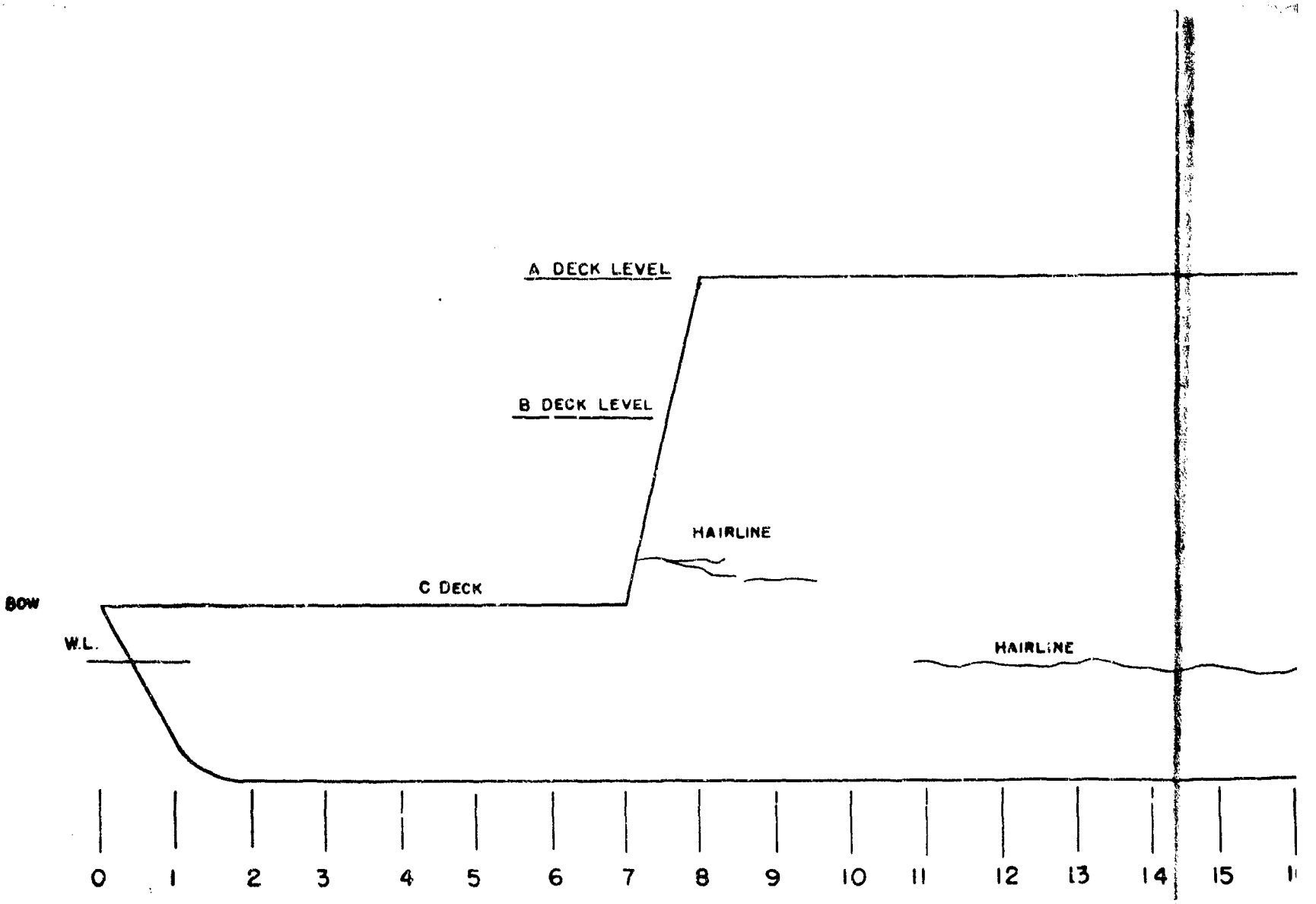
SECRET

ARDC -- 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

2



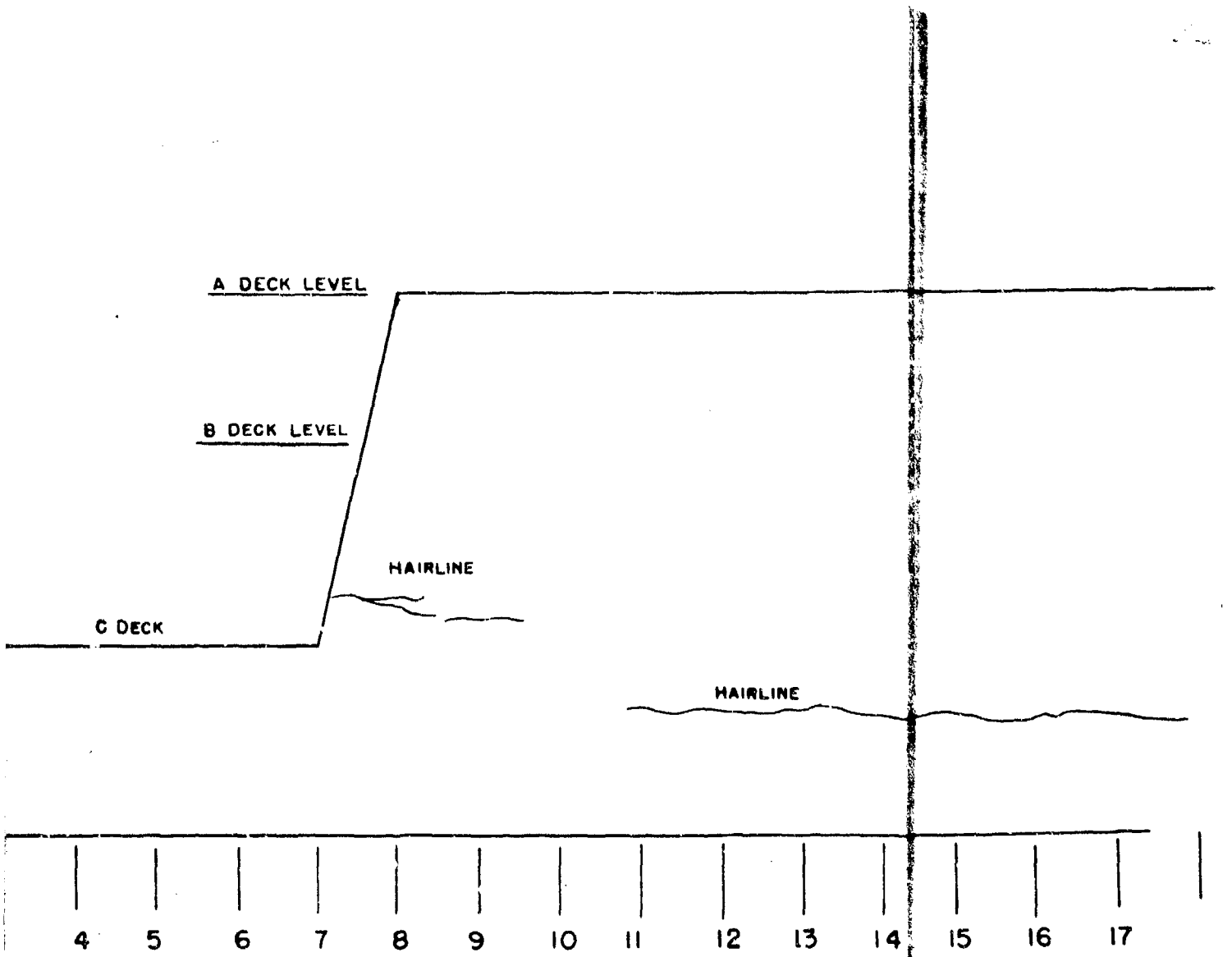
OUTSIDE FACE OF PORT WALL

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

APPENDIX A, ENCLOS
SERIAL 00150



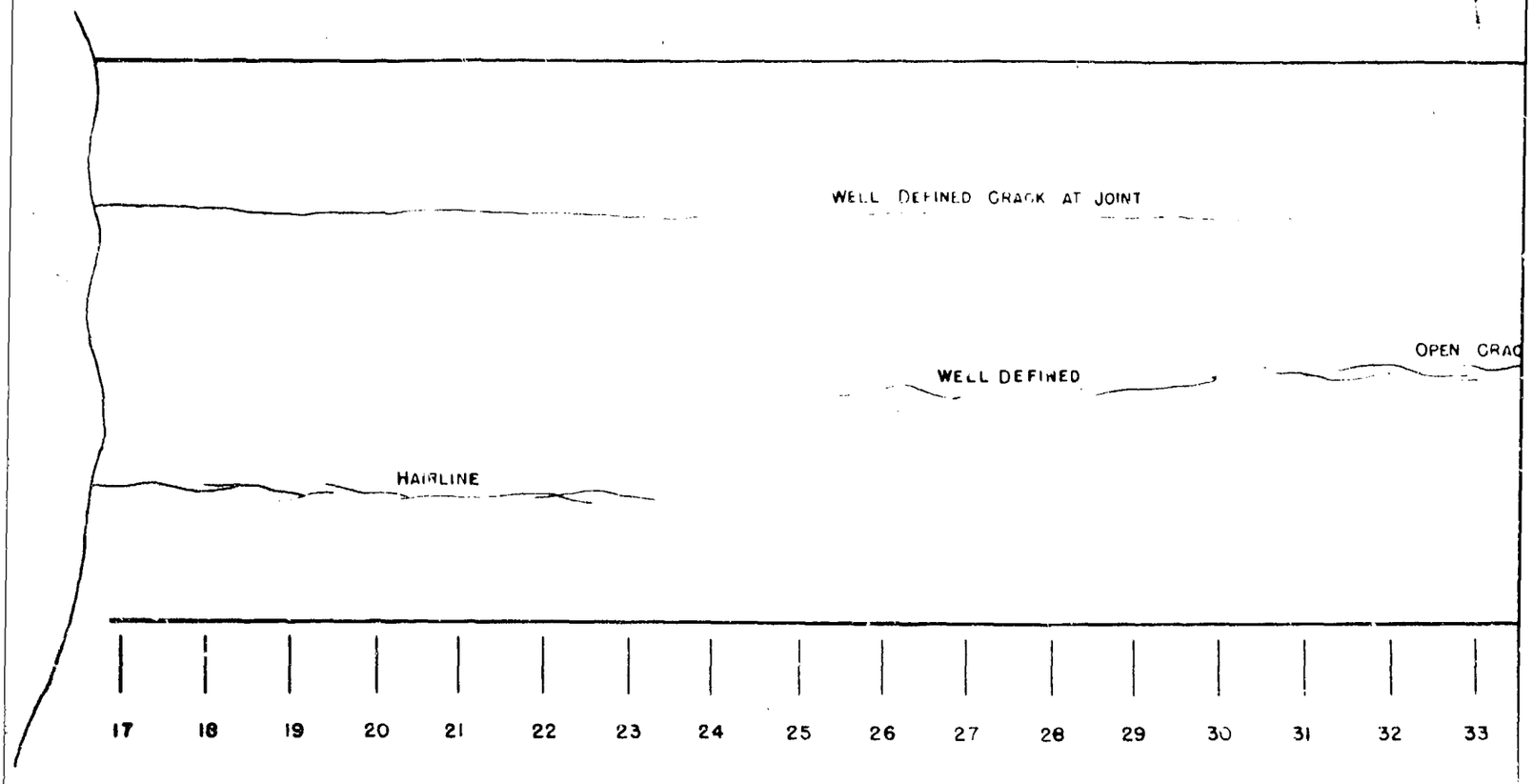
SECRET

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

2



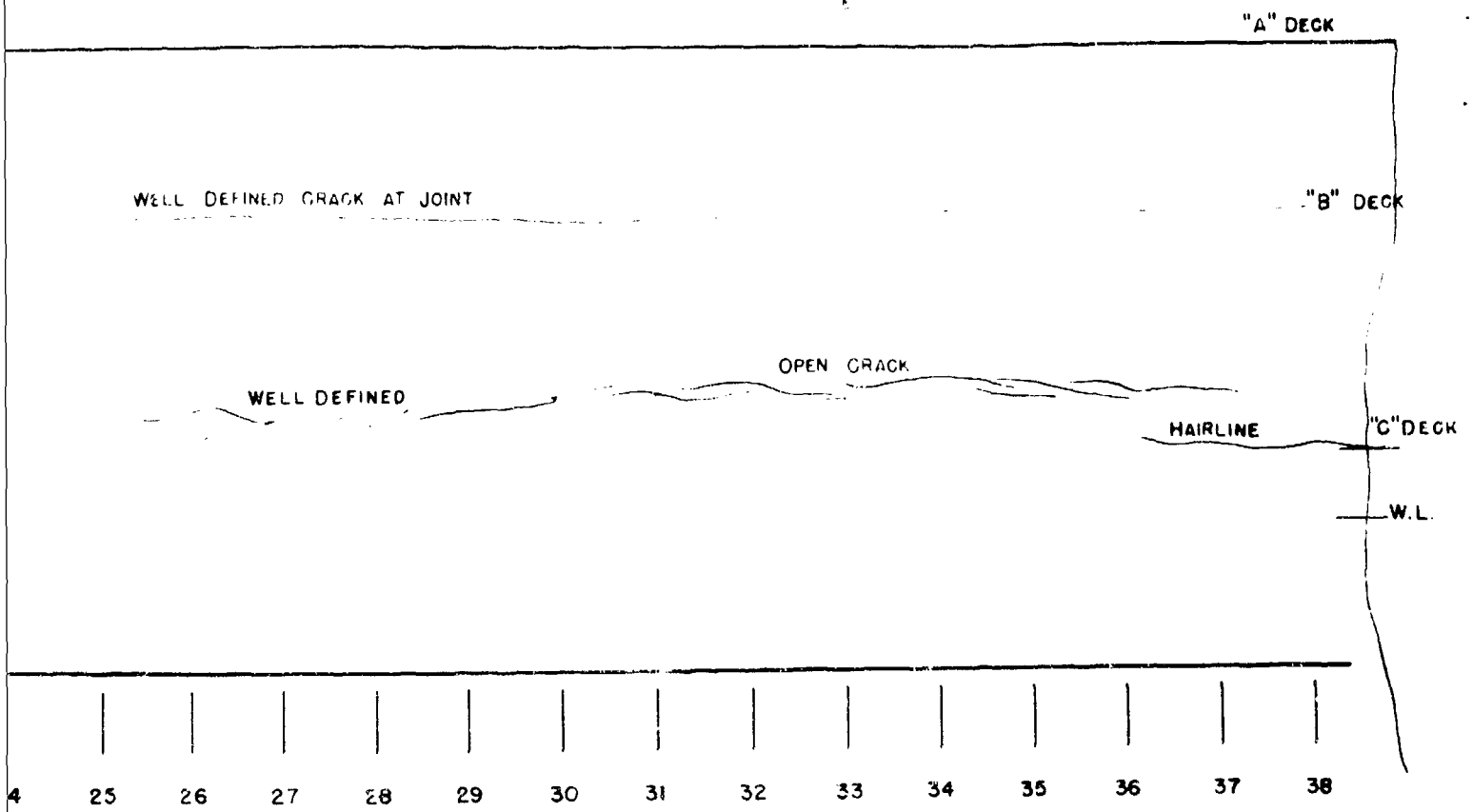
OUTSIDE FACE PORT WALL

ARDC-13

CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET



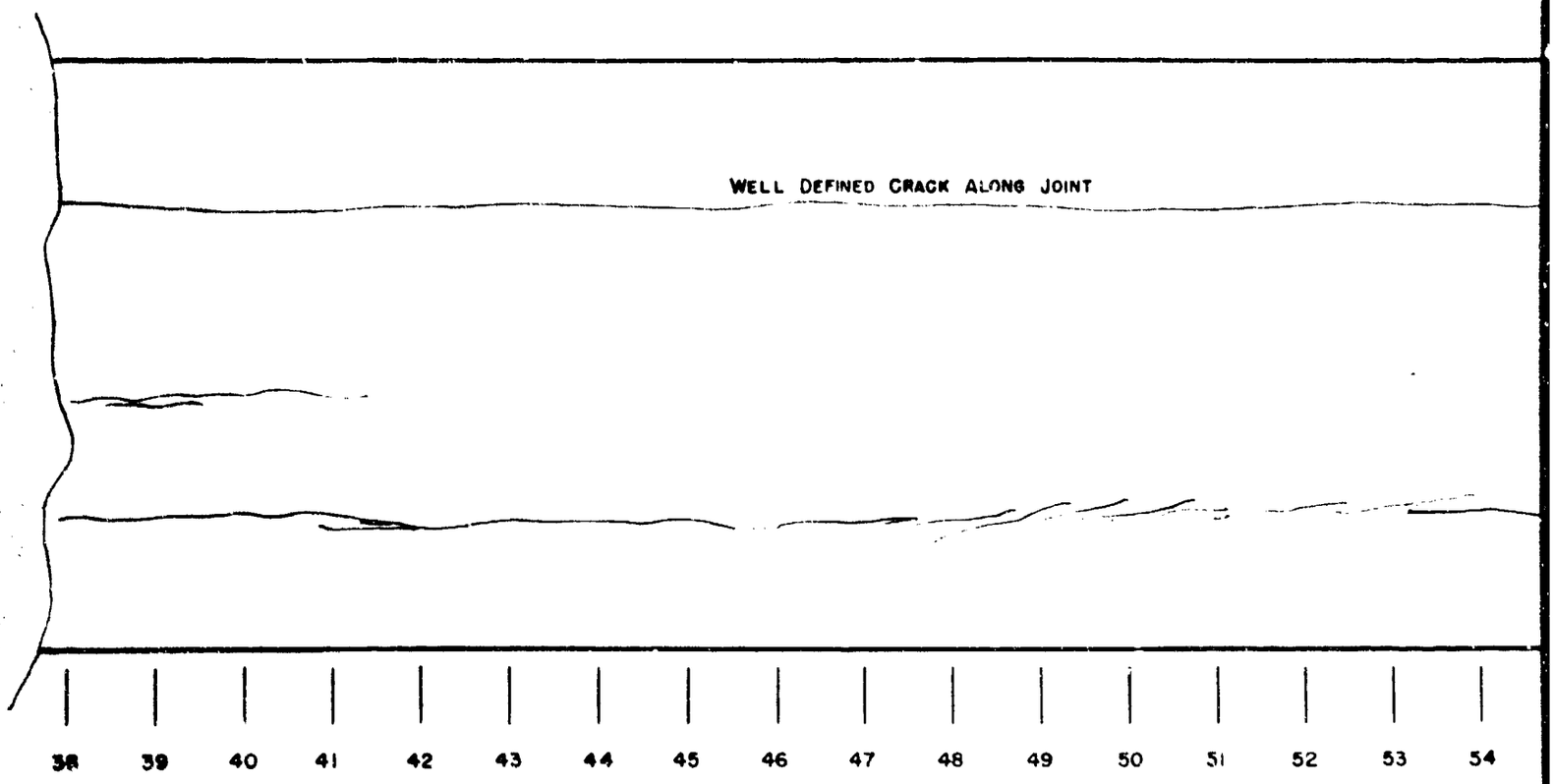
ARDC-13
RACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

SECRET

2



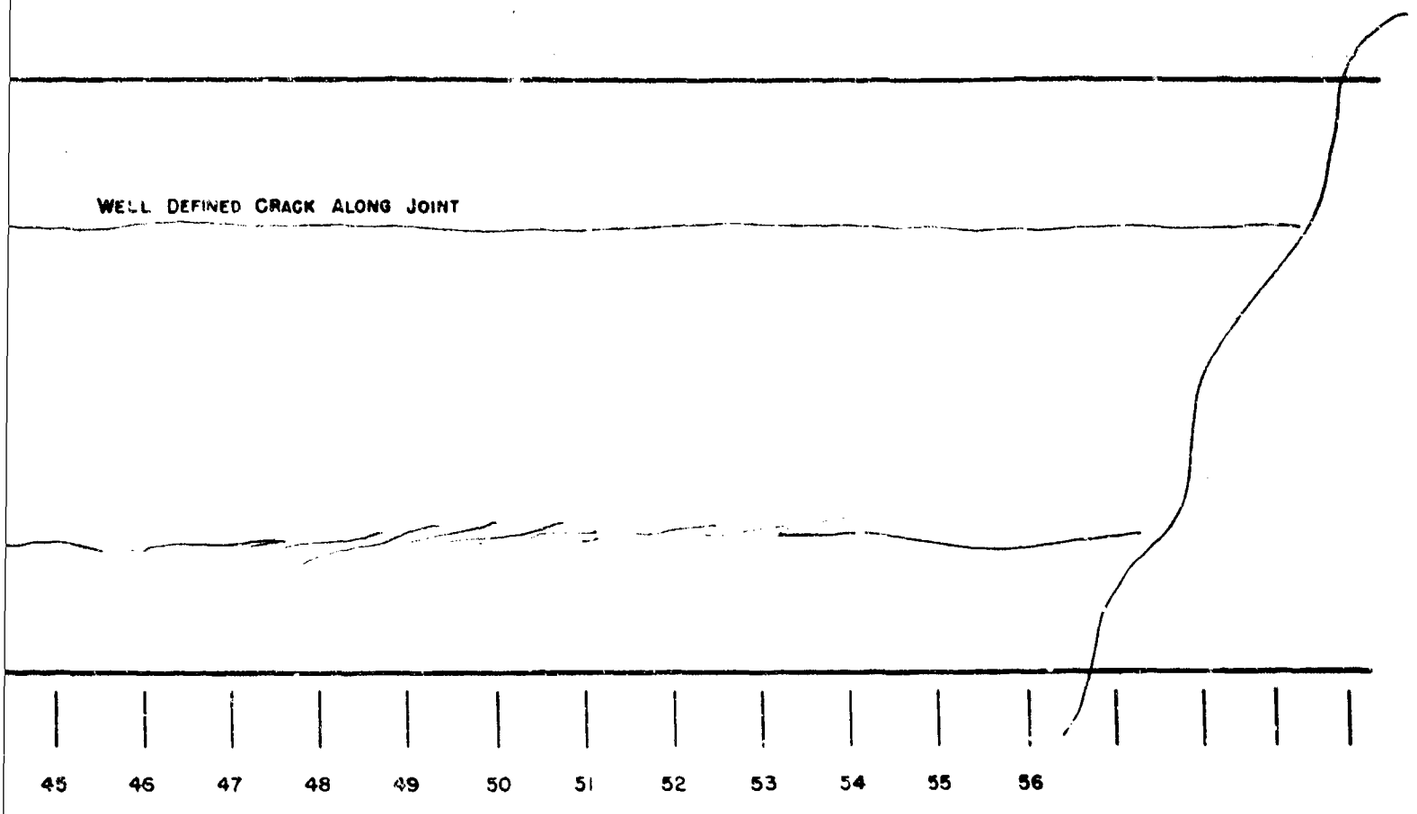
OUTBOARD FACE PORT WALL

ARDC-13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

APP



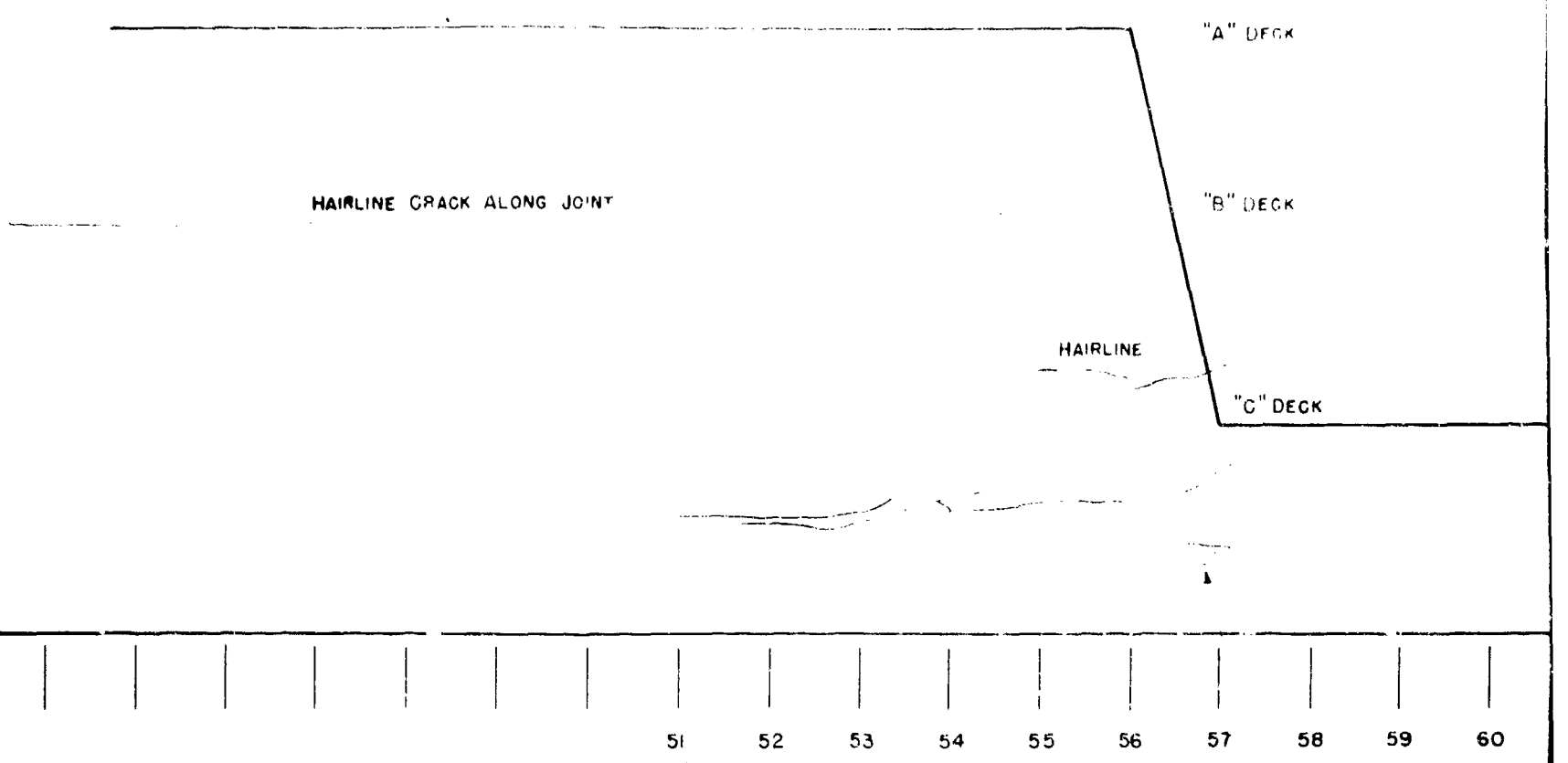
OUTBOARD FACE PORT WALL

SEL. T

ARDC-13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET



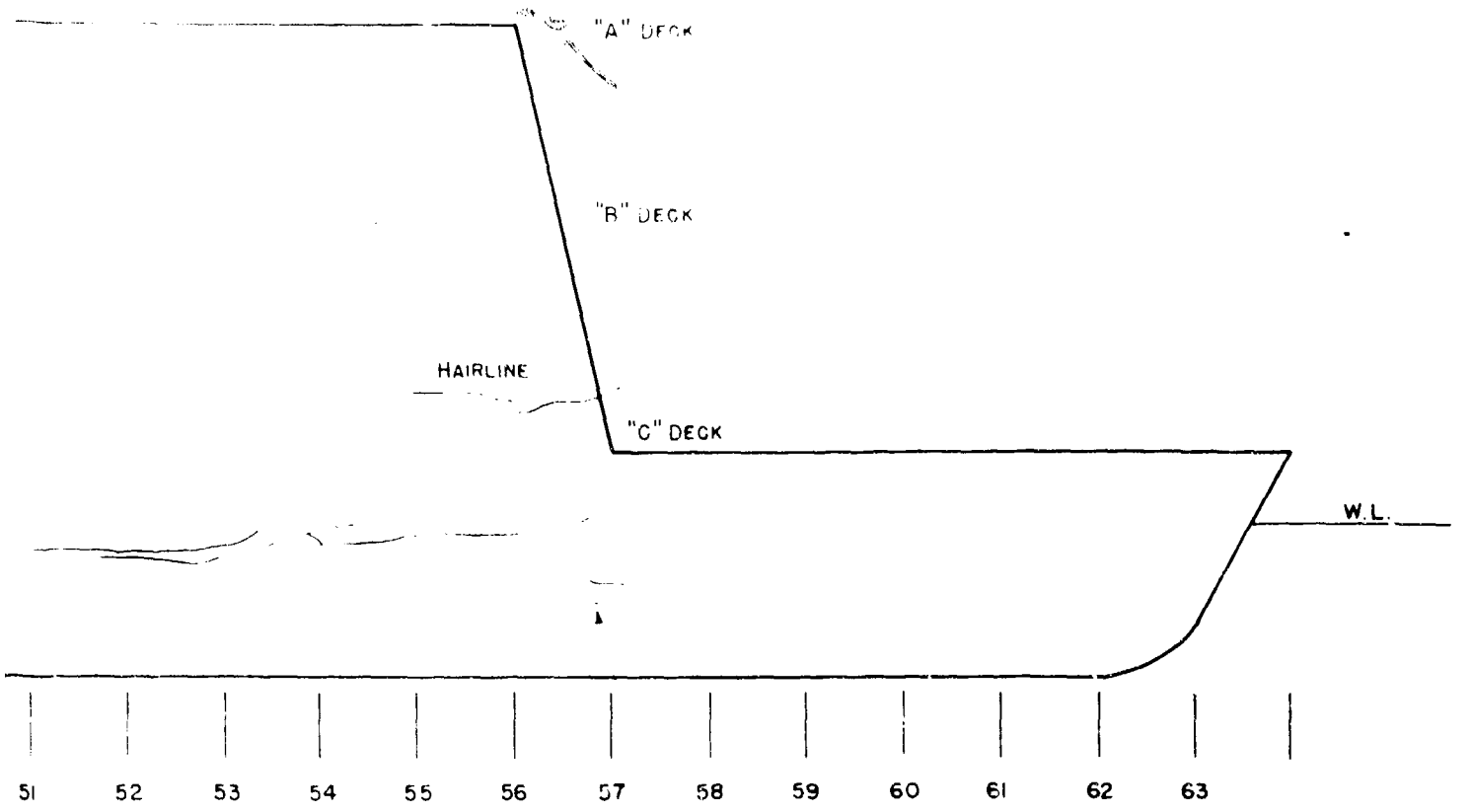
SPALLING NOTED ON

OUTSIDE FACE PORT WALL

ARDC-13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET



SPALLING NOTED ON INSIDE OF DECK APPROX. 7' BELOW WATER LINE

OUTSIDE FACE PORT WALL

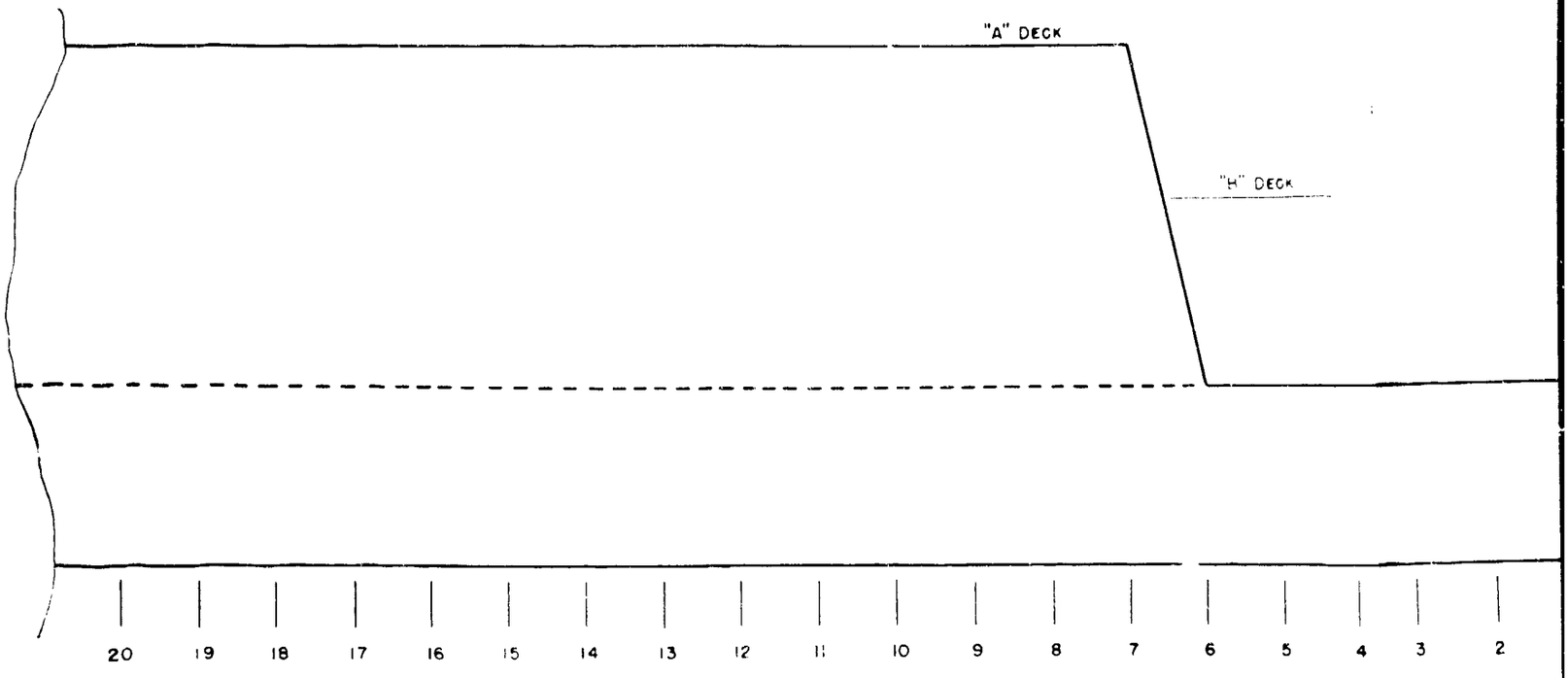
ARDC-13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

SECRET

2



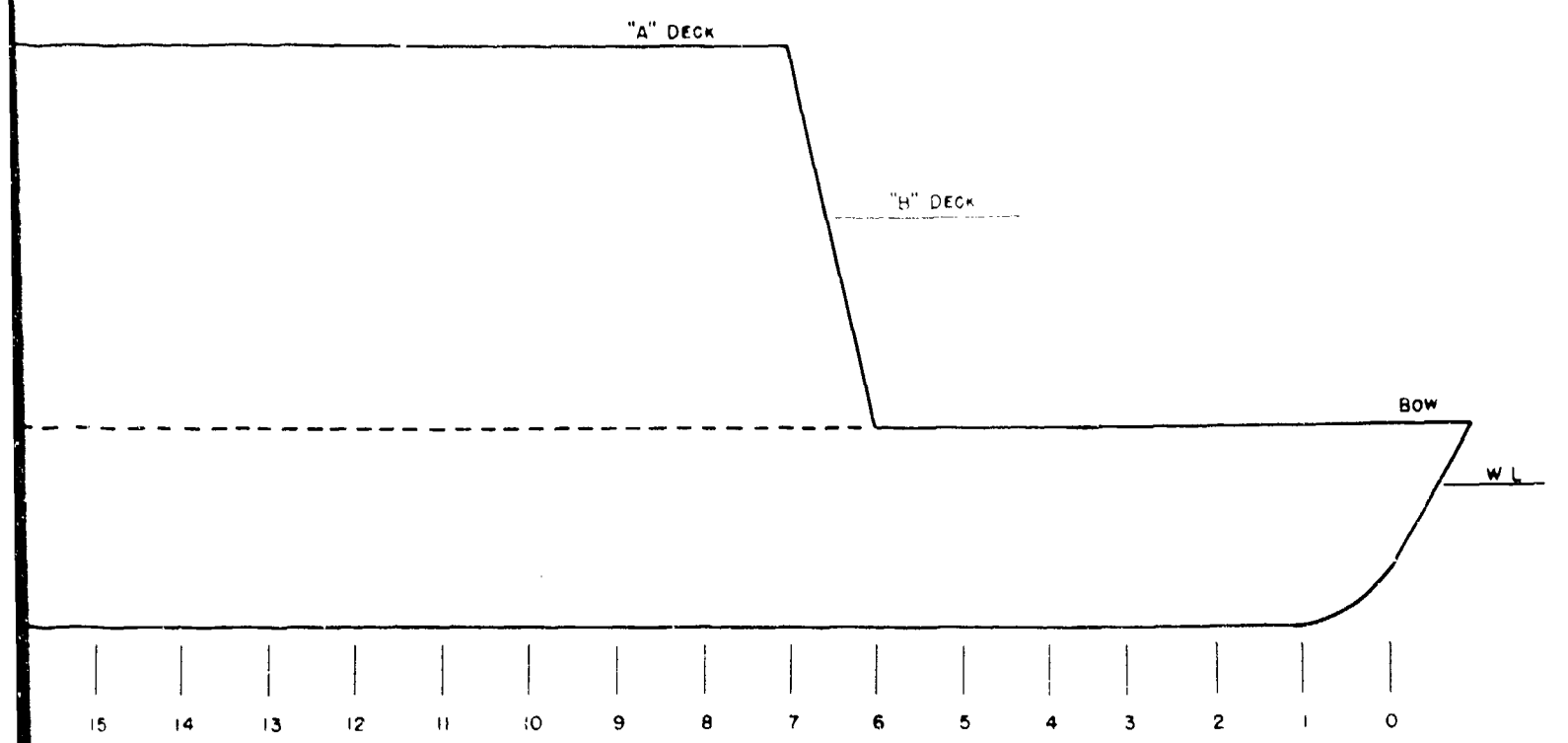
OUTSIDE FACE STARBOARD WALL

ARDC-13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

APPENDIX A, ENCLOSURE
SERIAL 001500

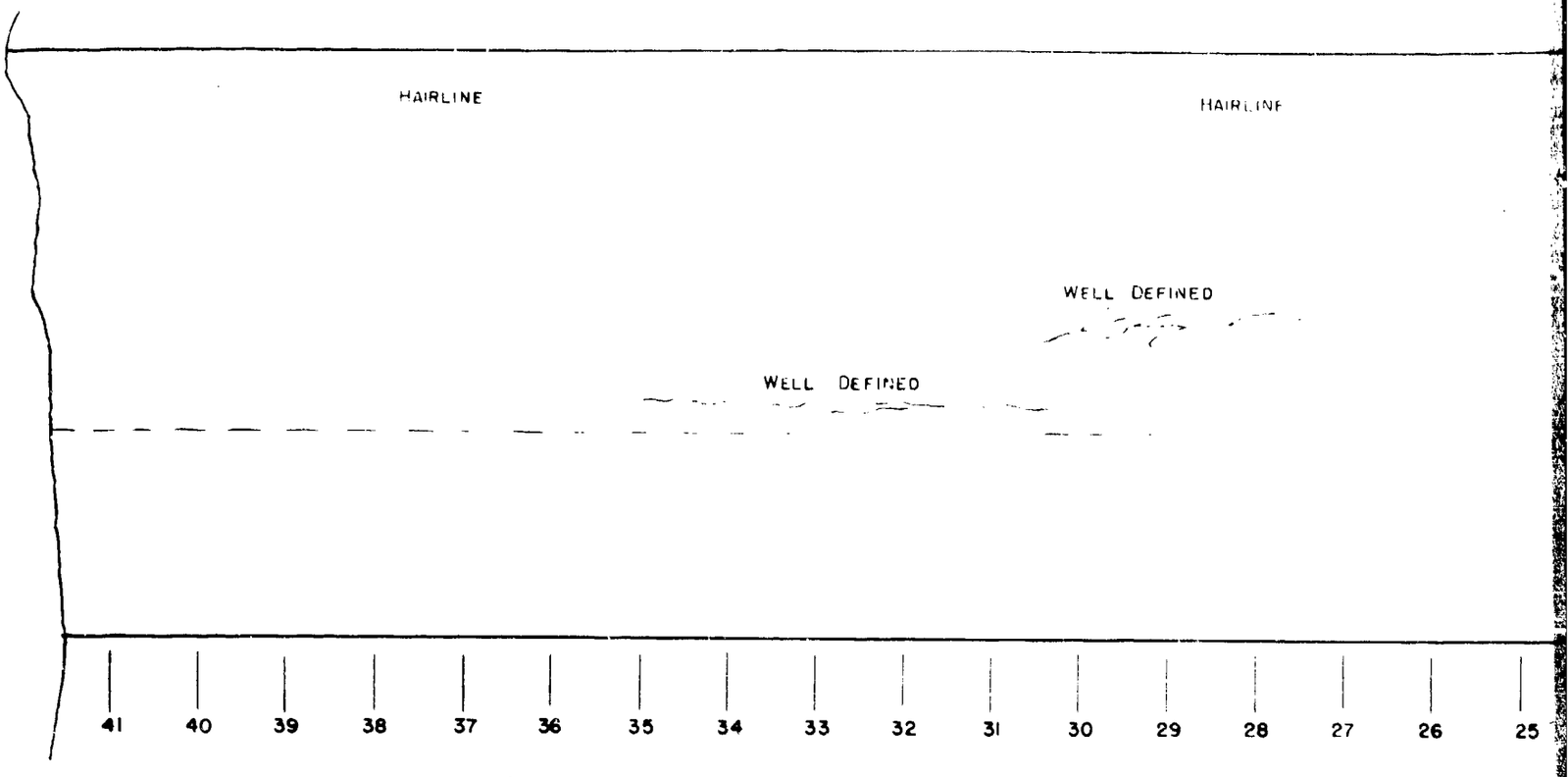


OUTSIDE FACE STARBOARD WALL

ARDC-13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET



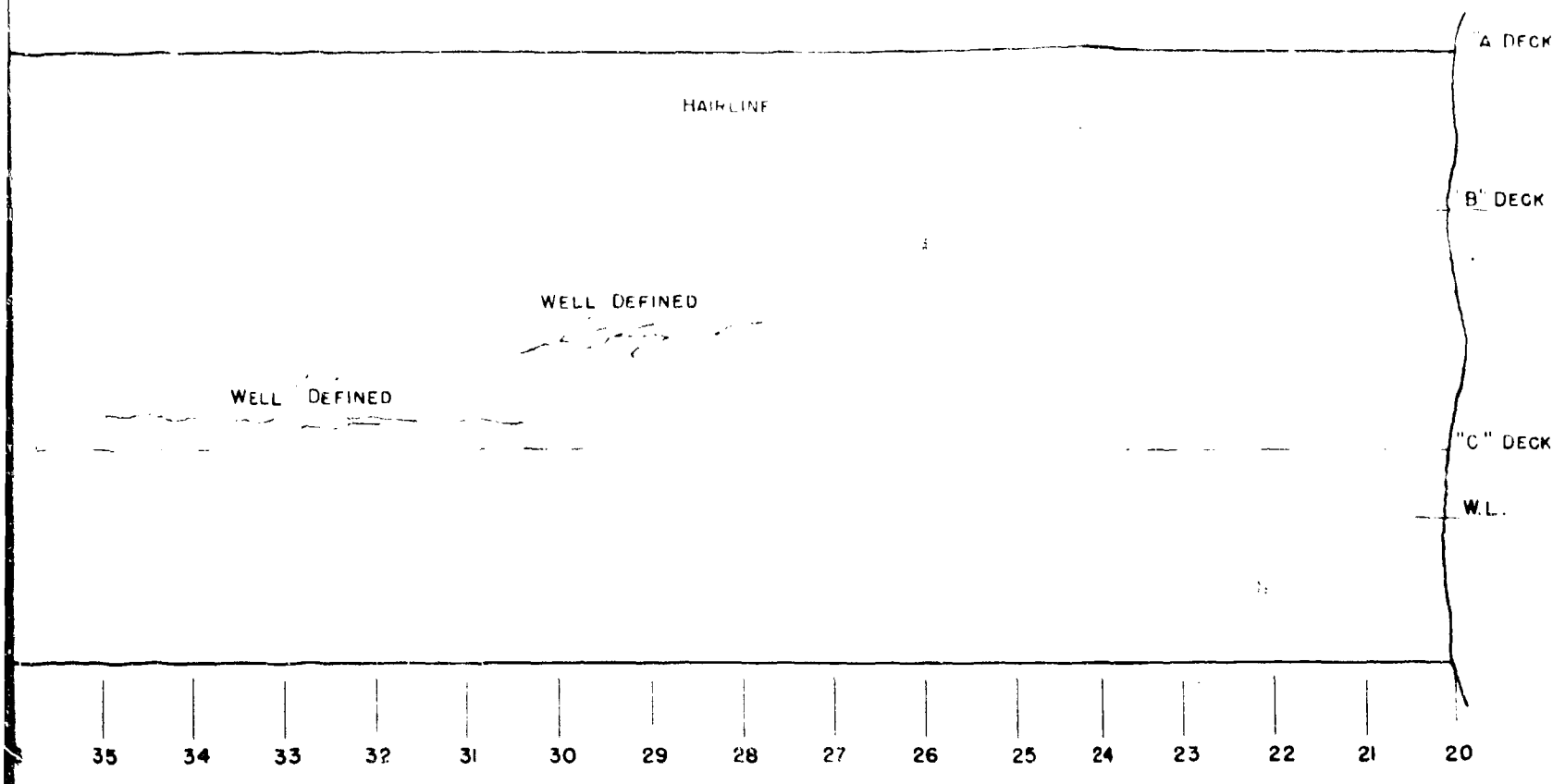
OUTSIDE FACE STARBOARD WALL

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

APPE



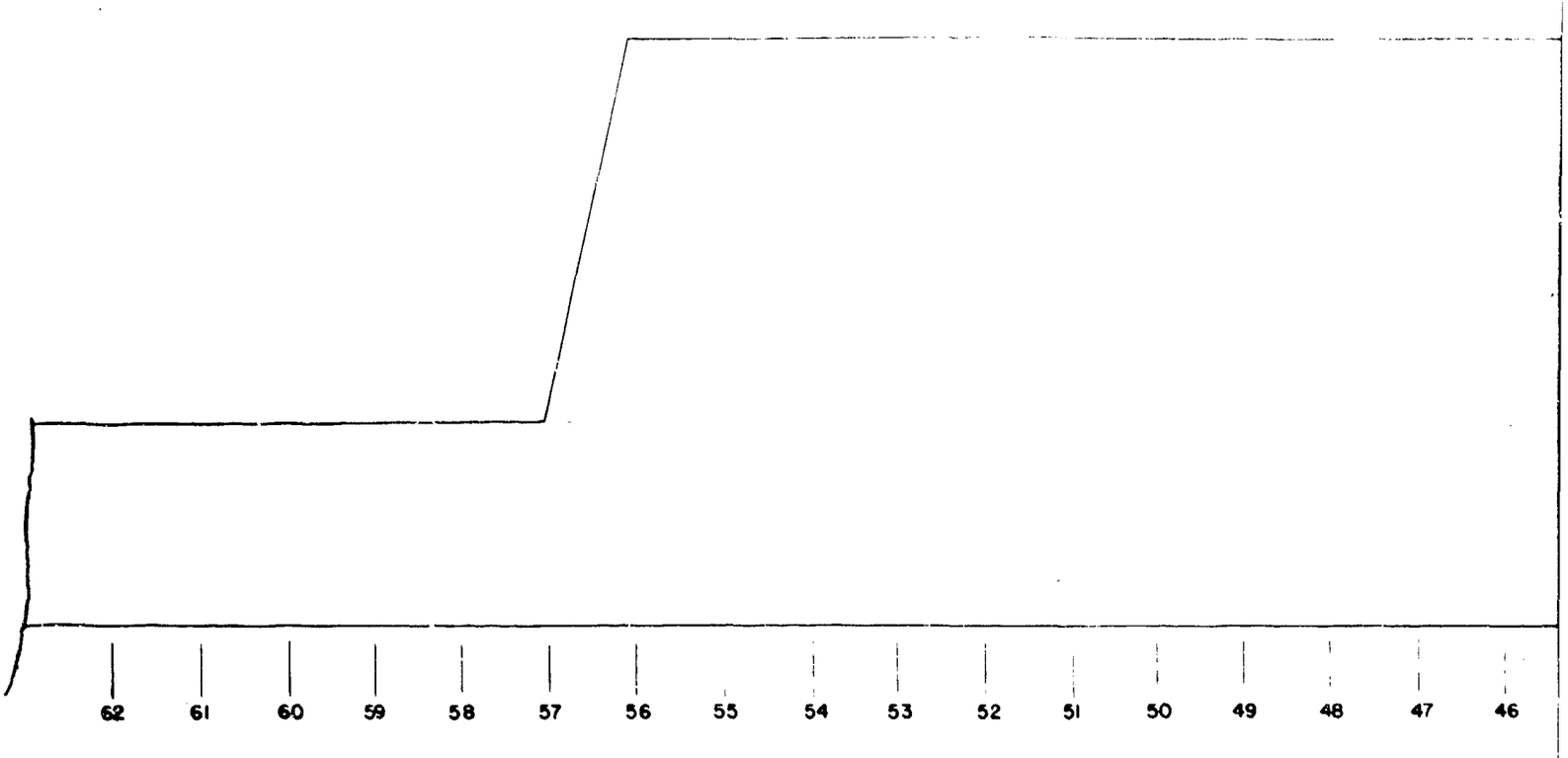
OUTSIDE FACE STARBOARD WALL

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

2

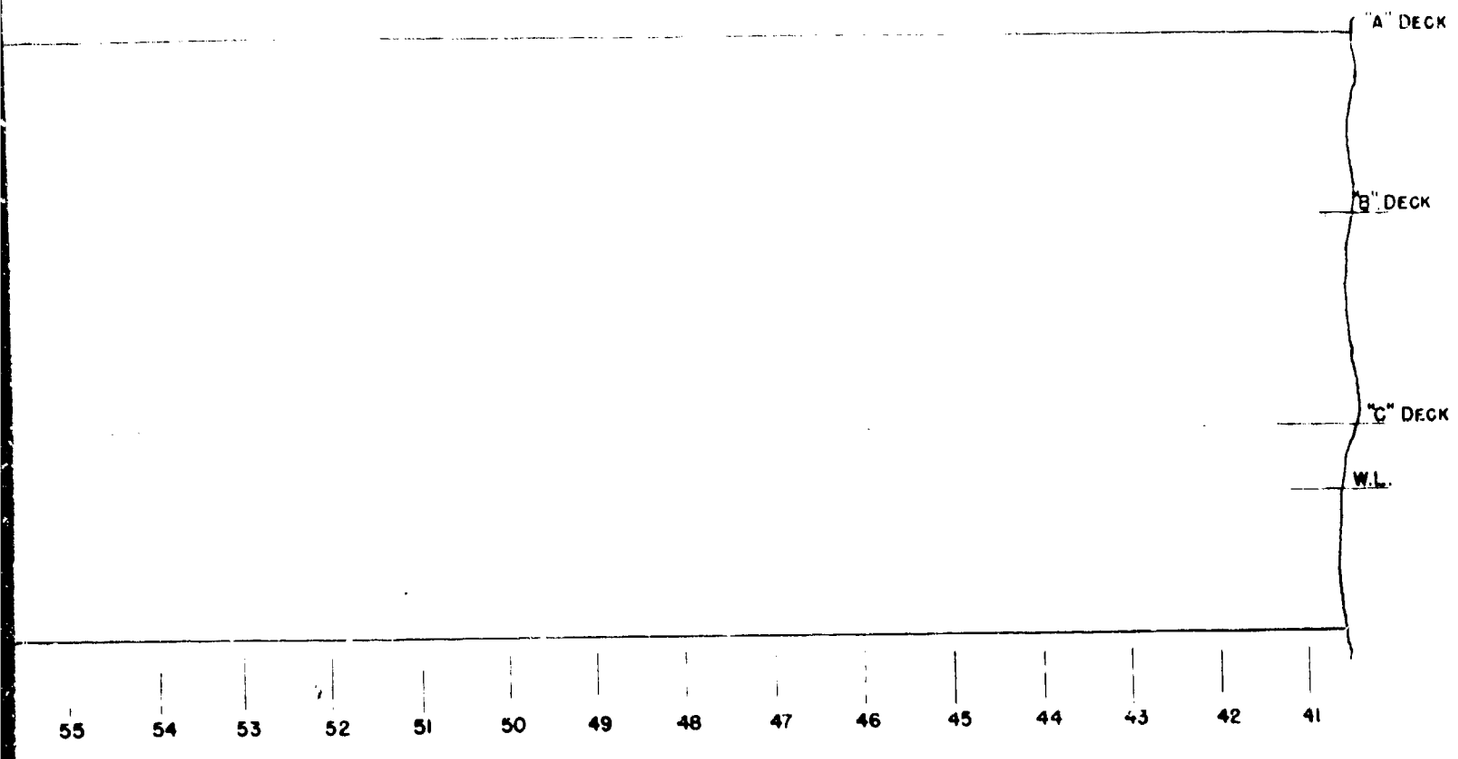


OUTSIDE FACE STARBOARD WALL

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET



OUTSIDE FACE STARBOARD WALL

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

SECRET

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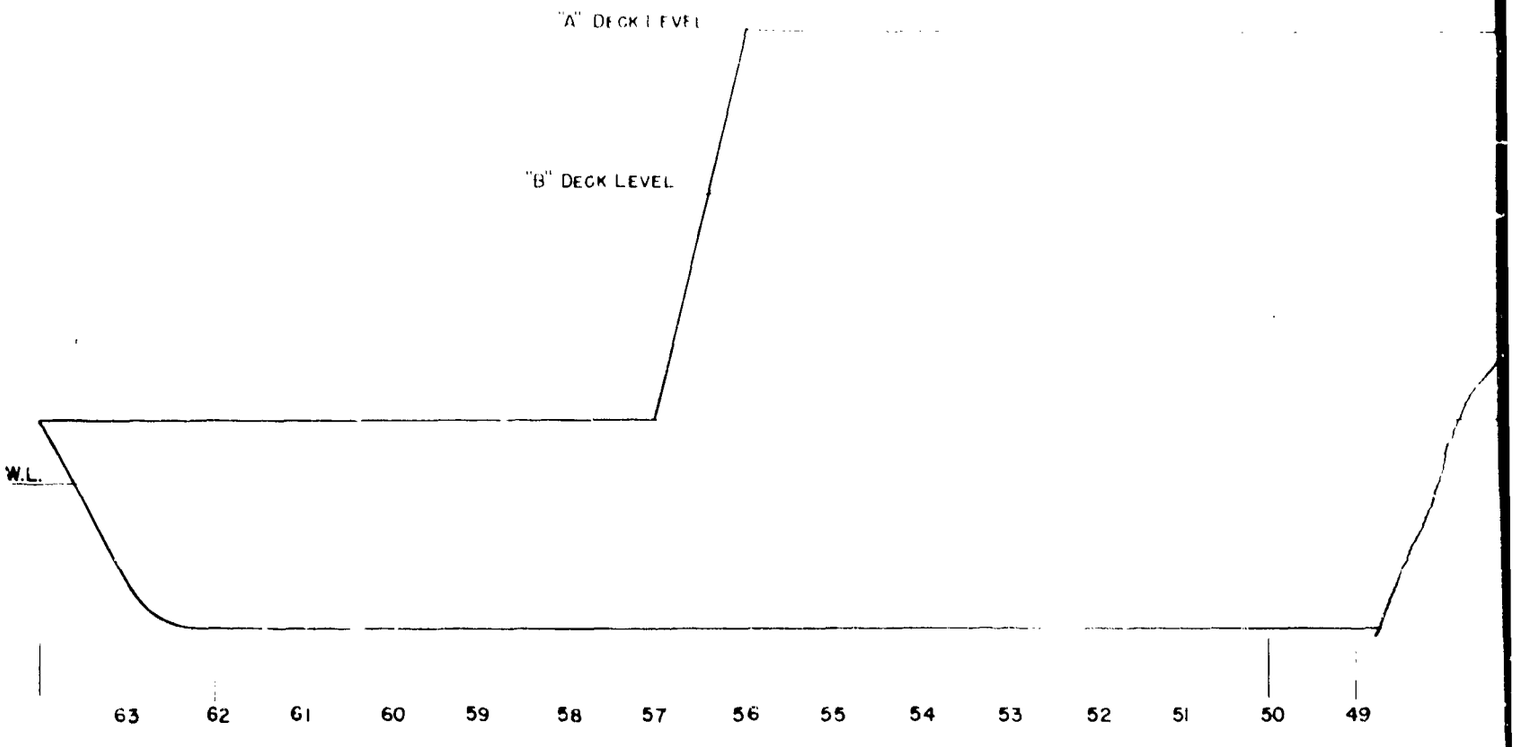

OUTSIDE FACE STARBOARD WALL

ARDC - 13

CRACK SURVEY AFTER TEST ABLE

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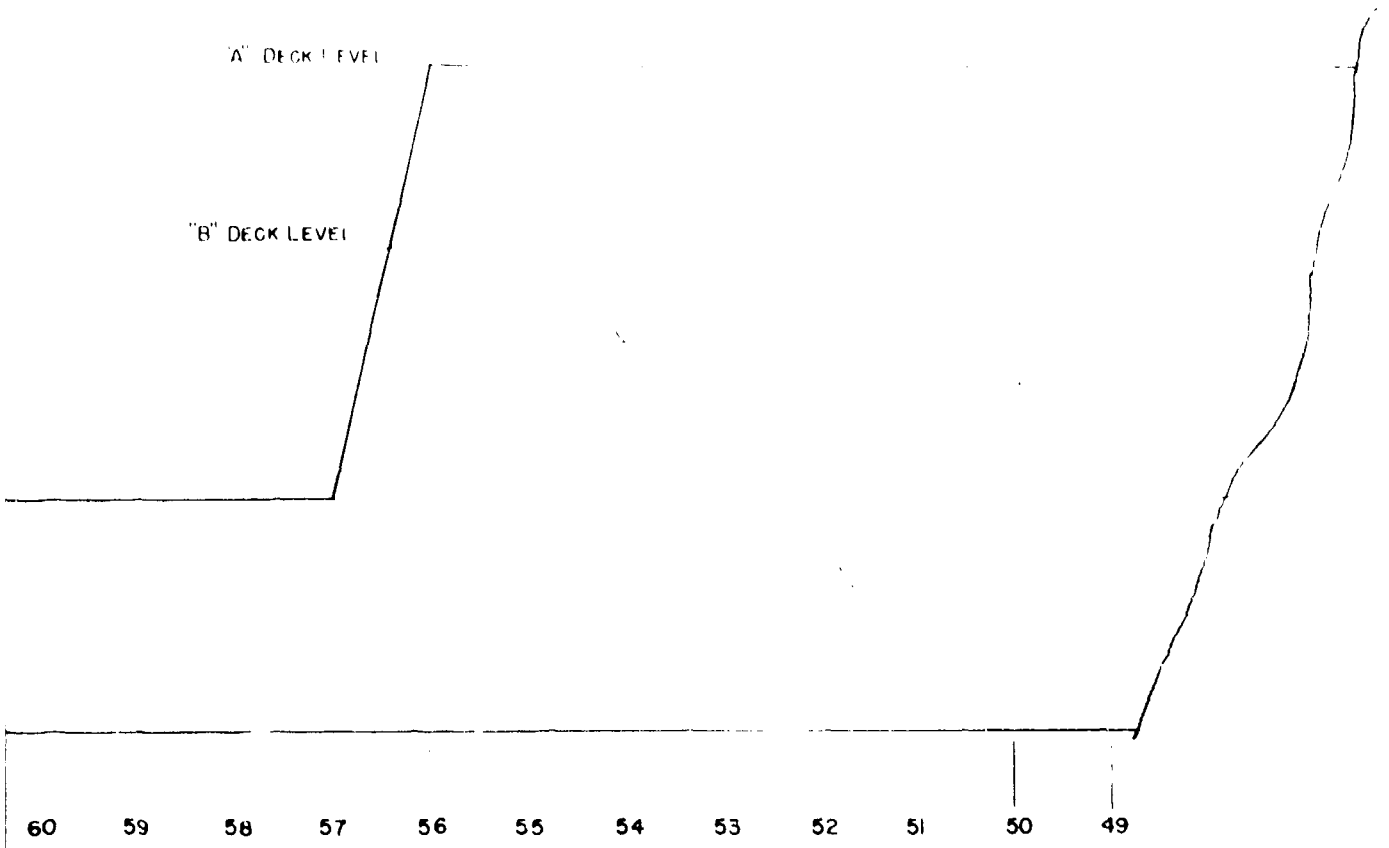
GRAPHIC SCALE IN FEET

APPENDIX A, ENCL
SERIAL 001



OUTSIDE FACE STARBOARD WALL

ARDC - 13

CRACK SURVEY AFTER TEST ABLE

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GRAPHIC SCALE IN FEET

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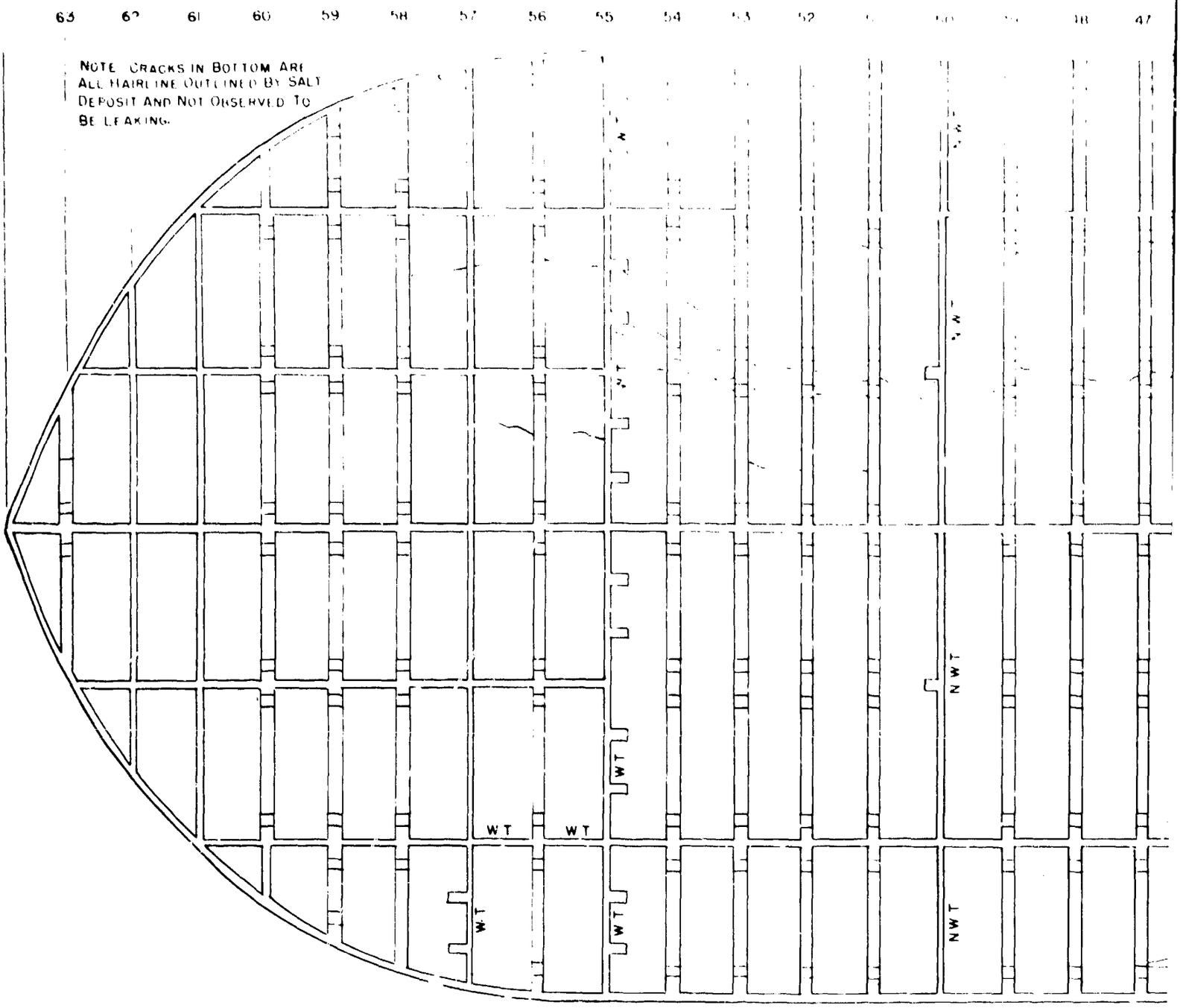

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

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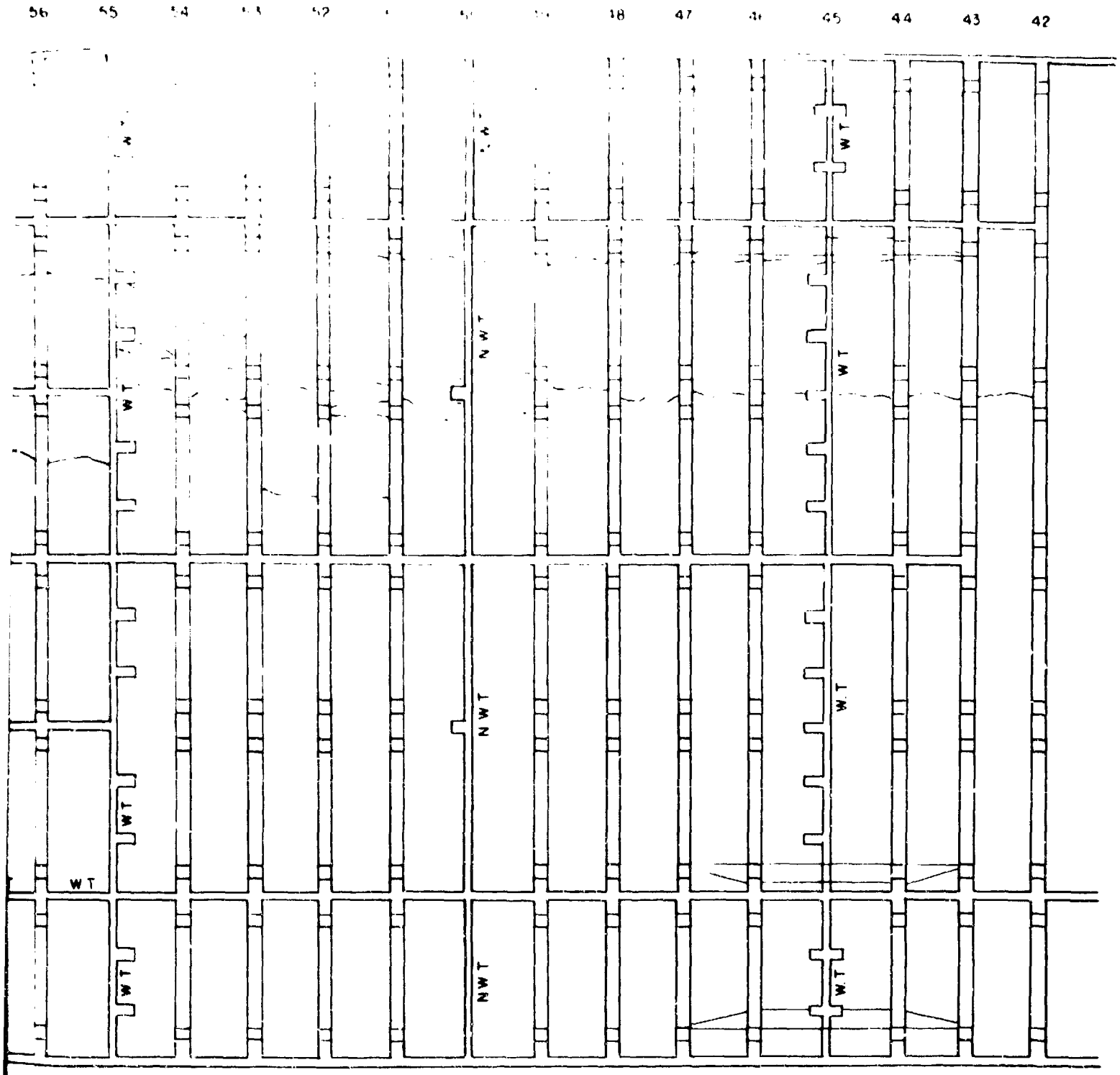
GRAPHIC SCALE IN FEET



ARDC - 13
CRACK SURVEY AFTER TEST ABLE

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GRAPHIC SCALE IN FEET

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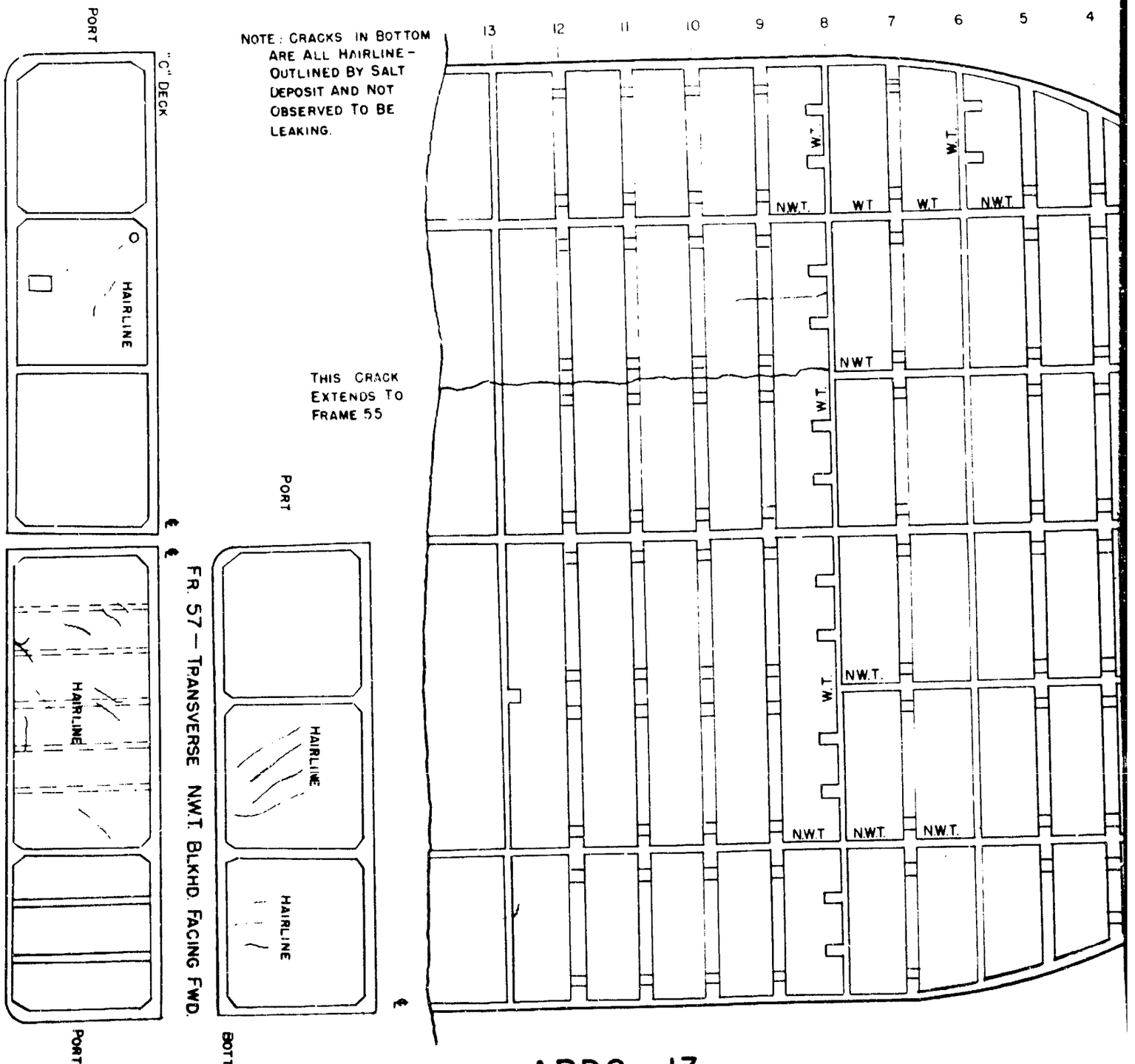

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

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GRAPHIC SCALE IN FEET

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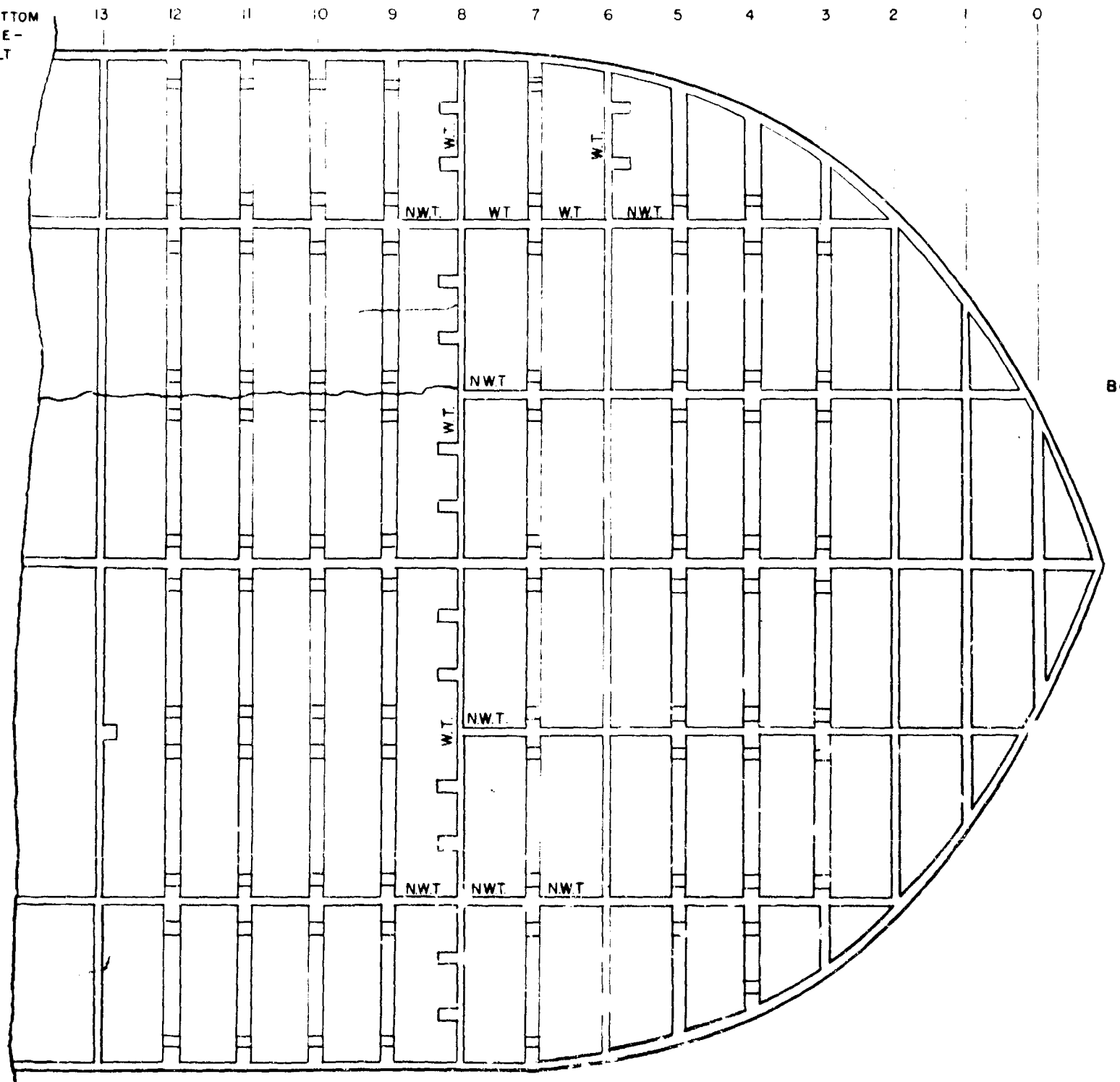


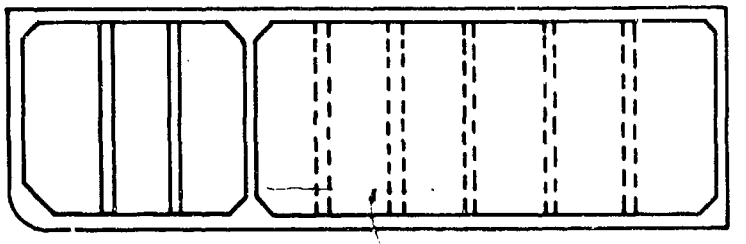
BOW

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

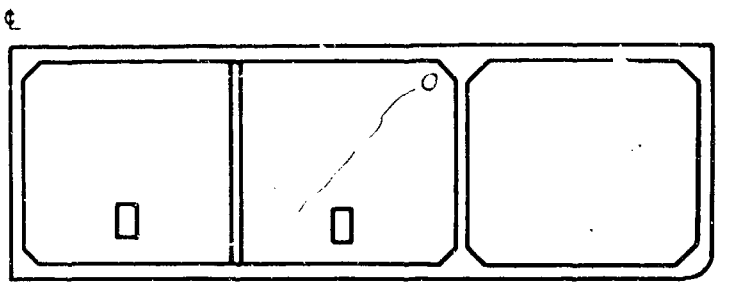
10 0 10 20

GRAPHIC SCALE IN FEET

2



WT BLKHD FR. 17-FACING FWD



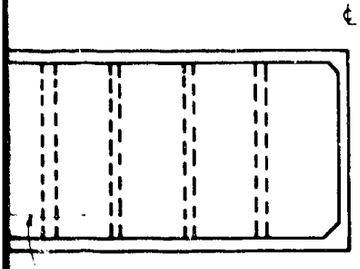
NWT BLKHD FR. 23-FACING AFT

ARDC-13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

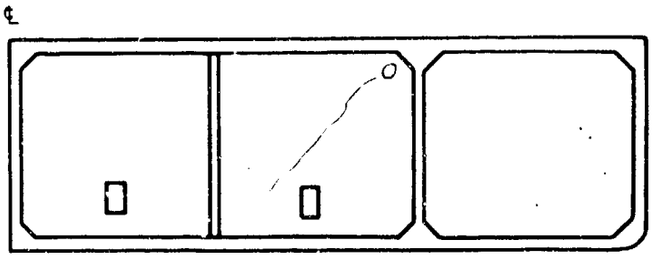
GRAPHIC SCALE IN FEET

APPENDIX A, ENCLOSURE
SERIAL 001500 P



JOINT HAIRLINE CRACK

17-FACING FWD



NWT BLKHD FR. 23-FACING AFT

ARDC-13
CRACK SURVEY AFTER TEST ABLE

10 0 10 20

GRAPHIC SCALE IN FEET

SECRET

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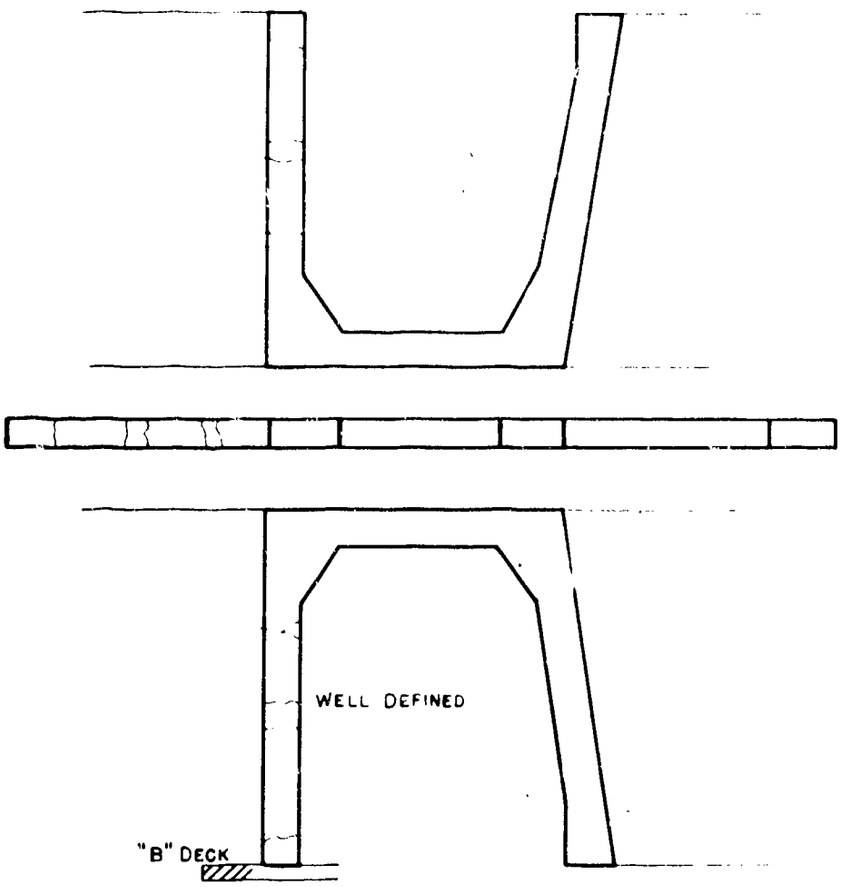
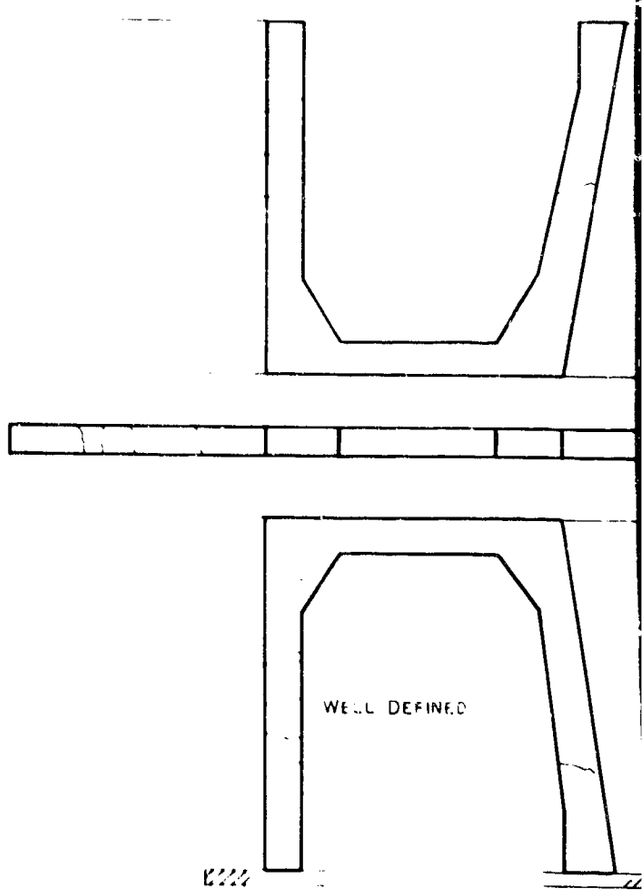


FR 10 TO 13



FR. 14 TO 18

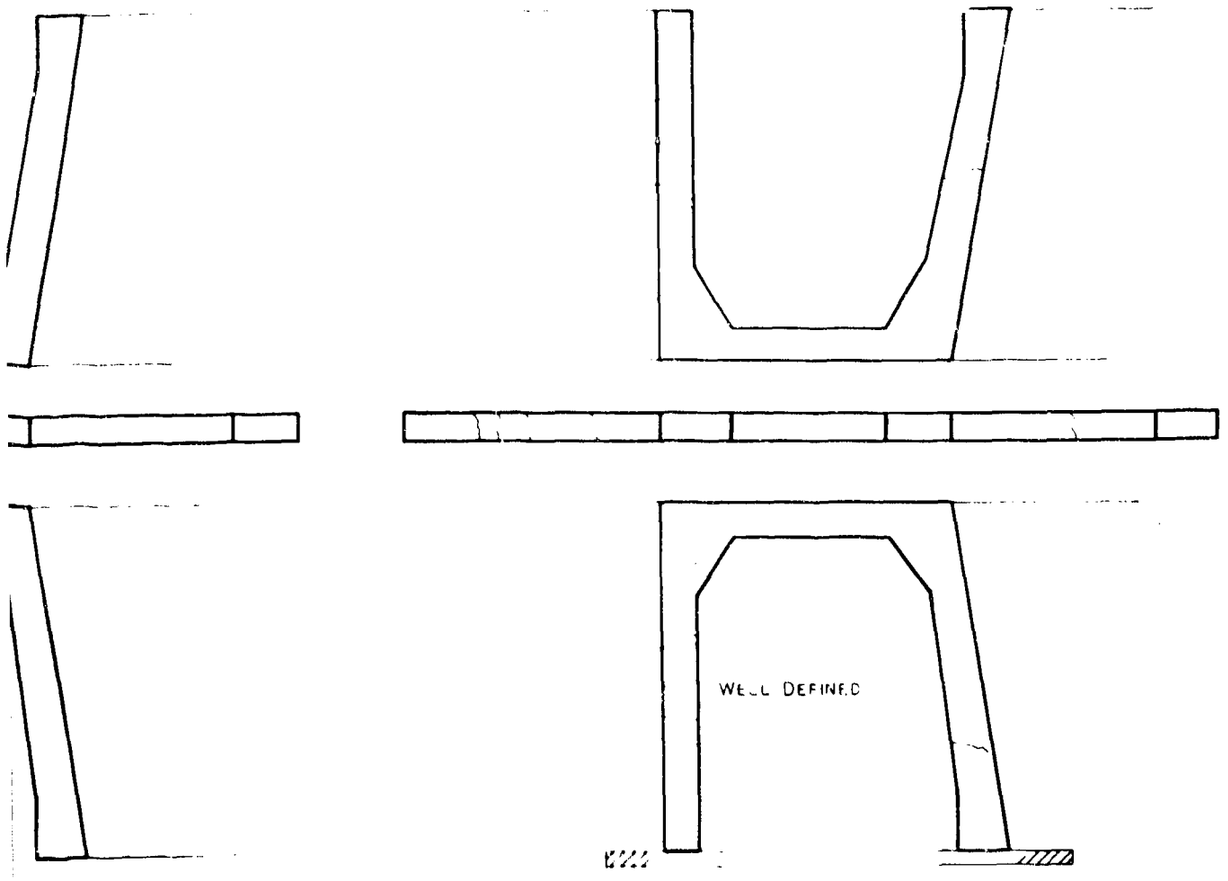
PORT WALL - FACING FWD

ARDC-13
CRACK SURVEY AFTER TEST ABLE

5 0 5 10

GRAPHIC SCALE IN FEET

APPENDIX A
SERIA



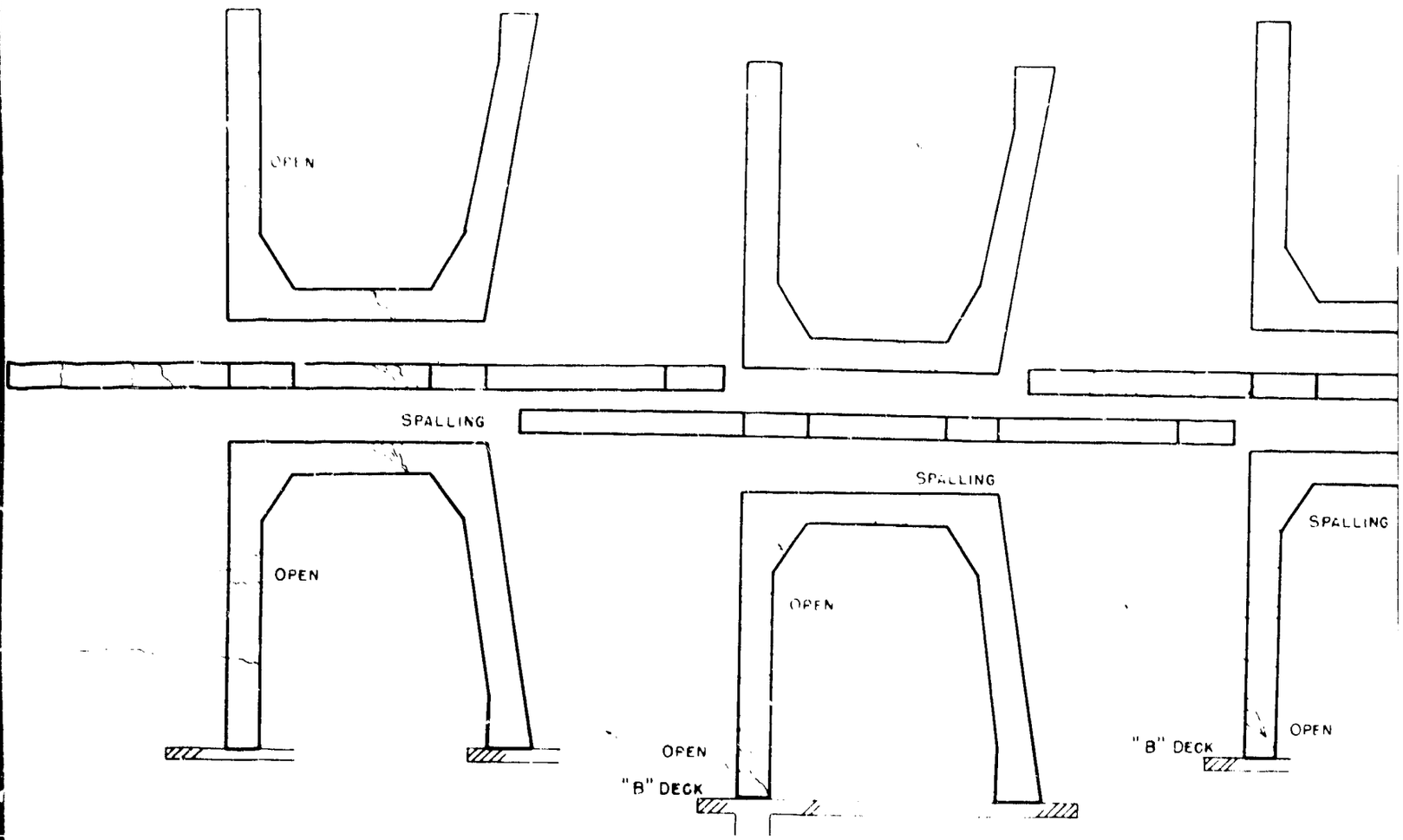
FR. 14 TO 18

PORT WALL - FACING FWD

ARDC-13
CRACK SURVEY AFTER TEST ABLE

5 0 5 10
GRAPHIC SCALE IN FEET

2



FR. 20 TO 21

FR. 22 TO 25

FR. 26

PORT WALL - FACING FWD

ARDC-13
CRACK SURVEY AFTER TEST ABLE

5 0 5 10

GRAPHIC SCALE IN FEET

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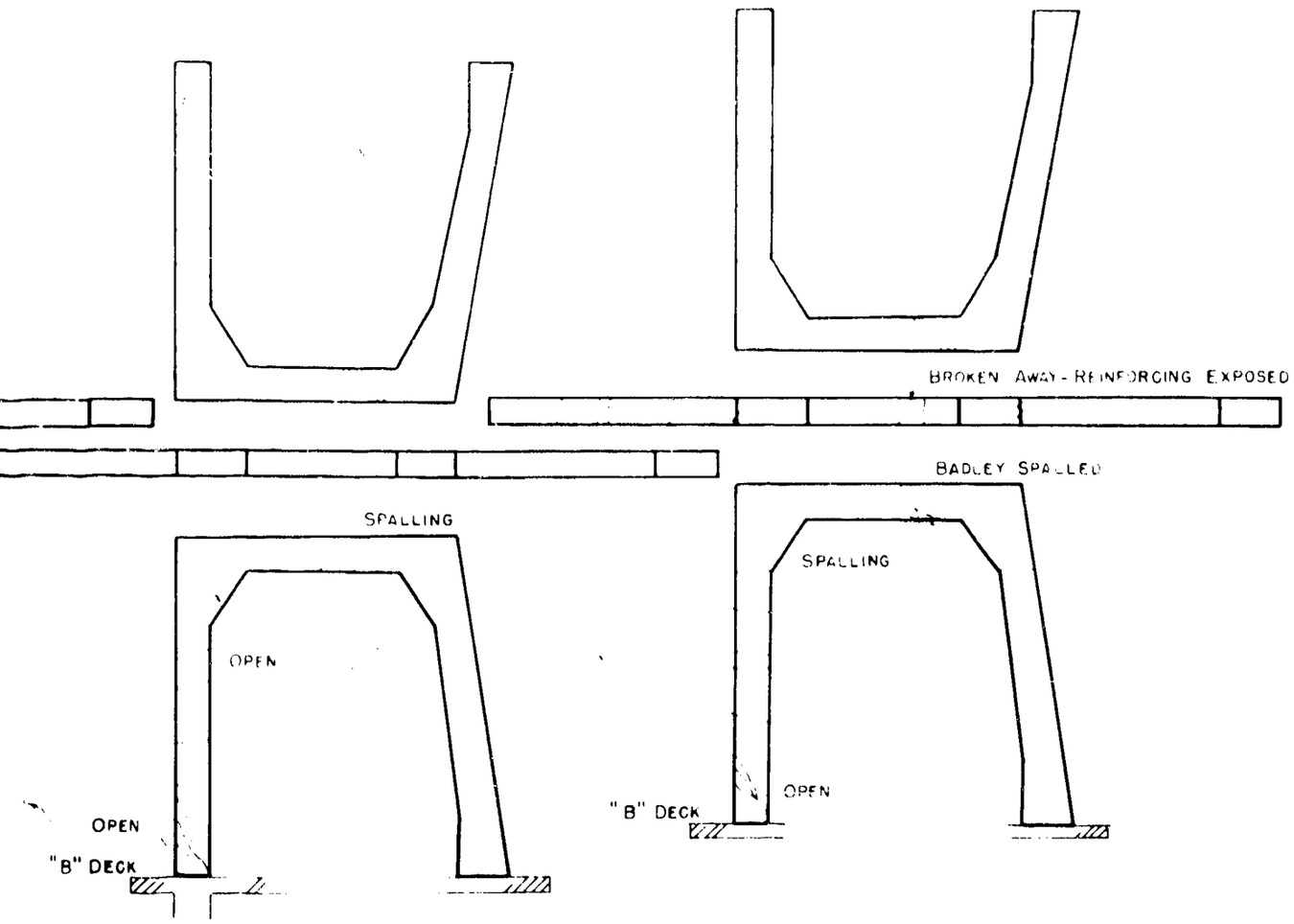

FR 22 TO 25

FR. 26 TO 27

PORT WALL - FACING FWD

ARDC-13

CRACK SURVEY AFTER TEST ABLE

5 0 5 10

GRAPHIC SCALE IN FEET

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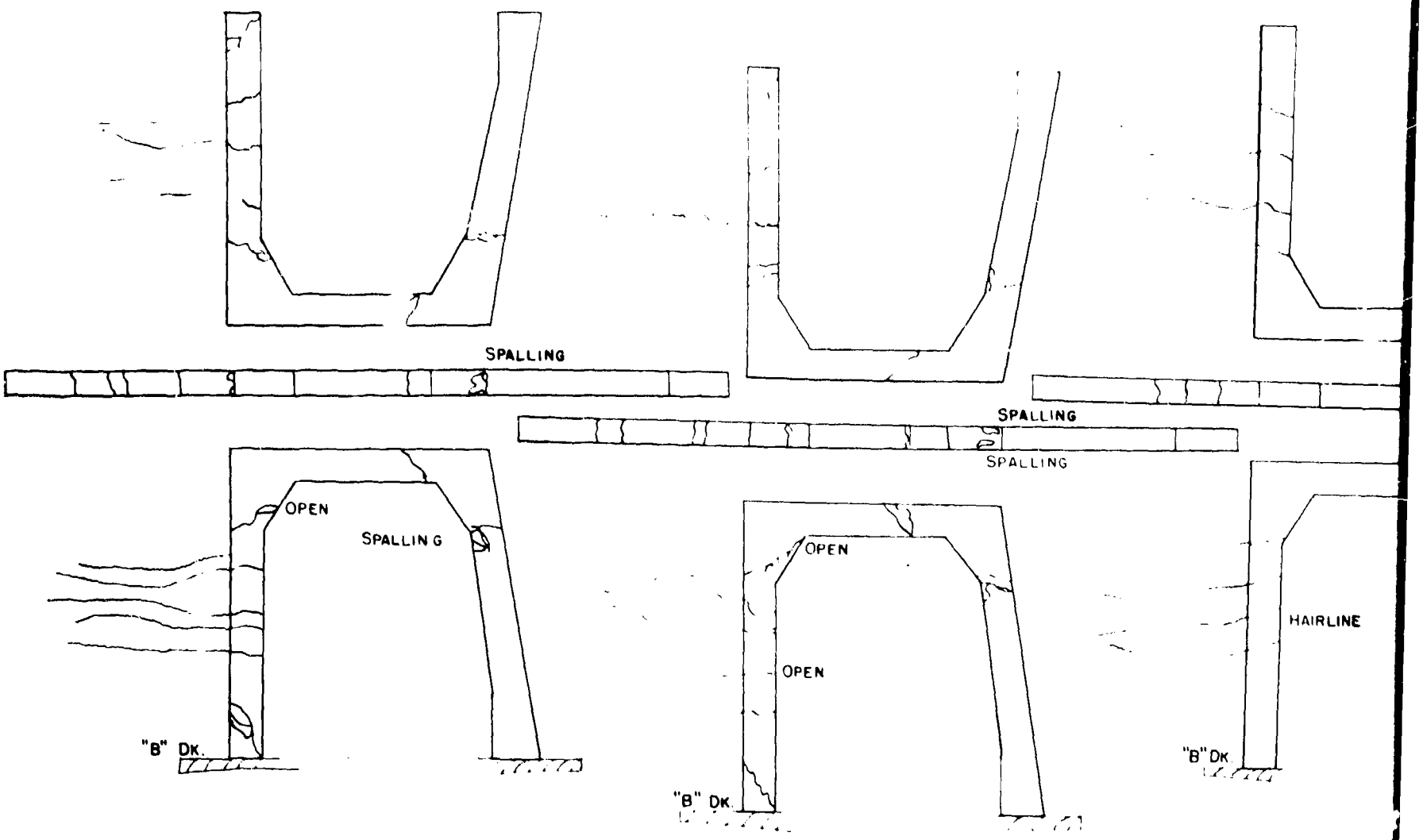


FR. 28 TO 32

FR. 23 TO 43

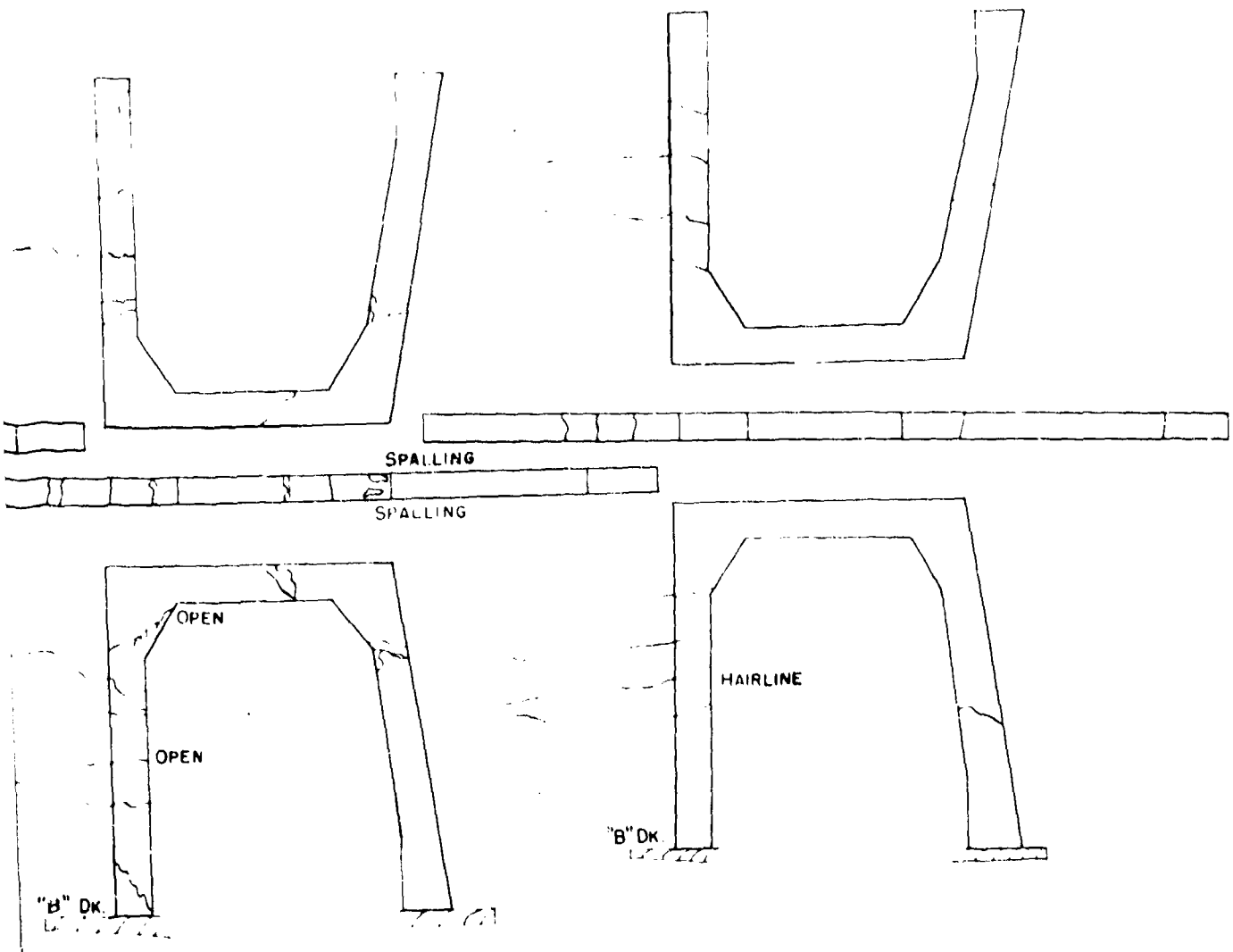
FR. 44

PORT WALL FACING FWD.

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

5 0 5 10

GRAPHIC SCALE IN FEET



FR. 23 TO 43

FR. 44 TO 54

PORT WALL FACING FWD.

ARDC - 13

CRACK SURVEY AFTER TEST ABLE

5 0 5 10

GRAPHIC SCALE IN FEET

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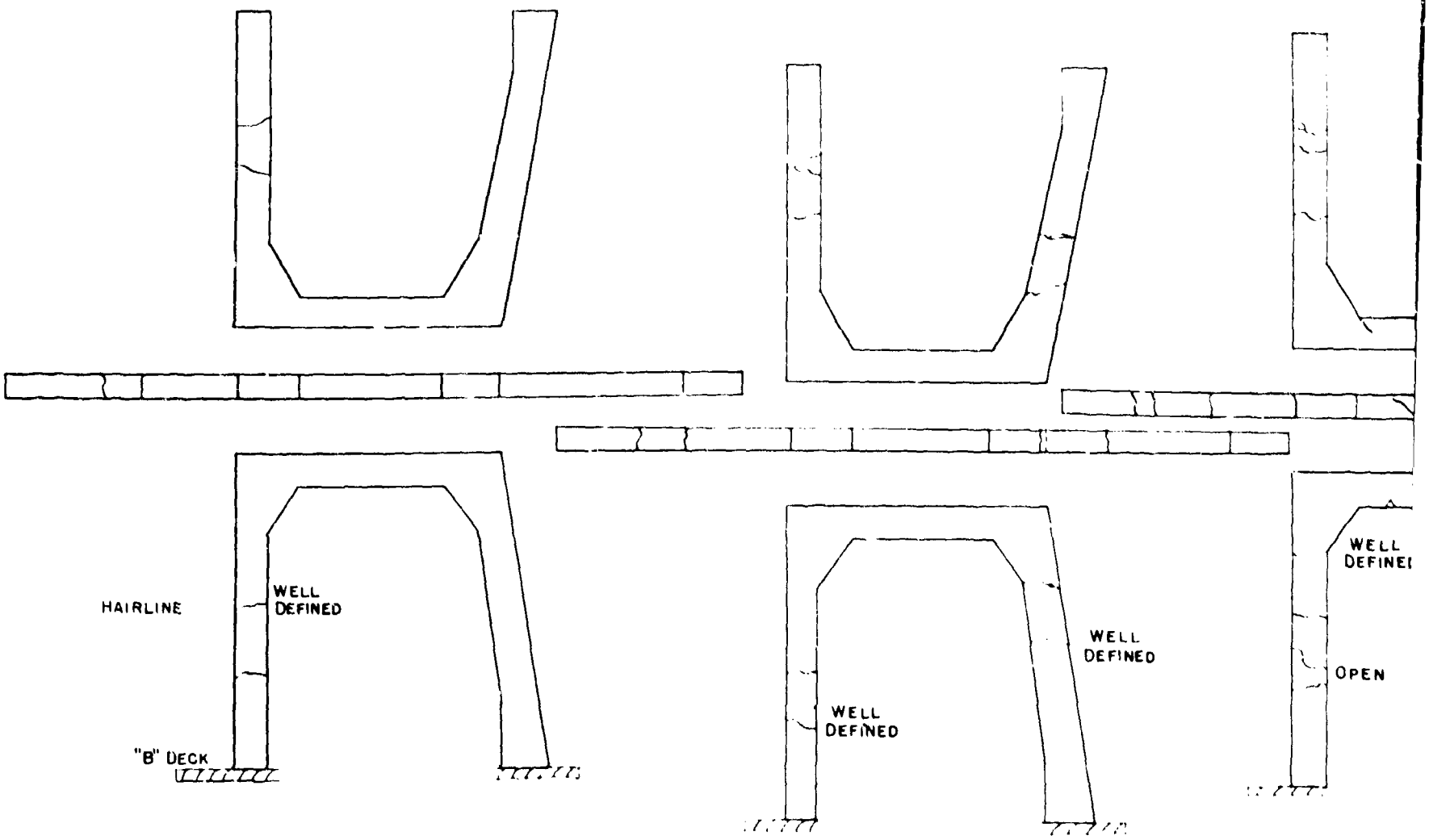


FR. 10 To 22

FR 23 To 25

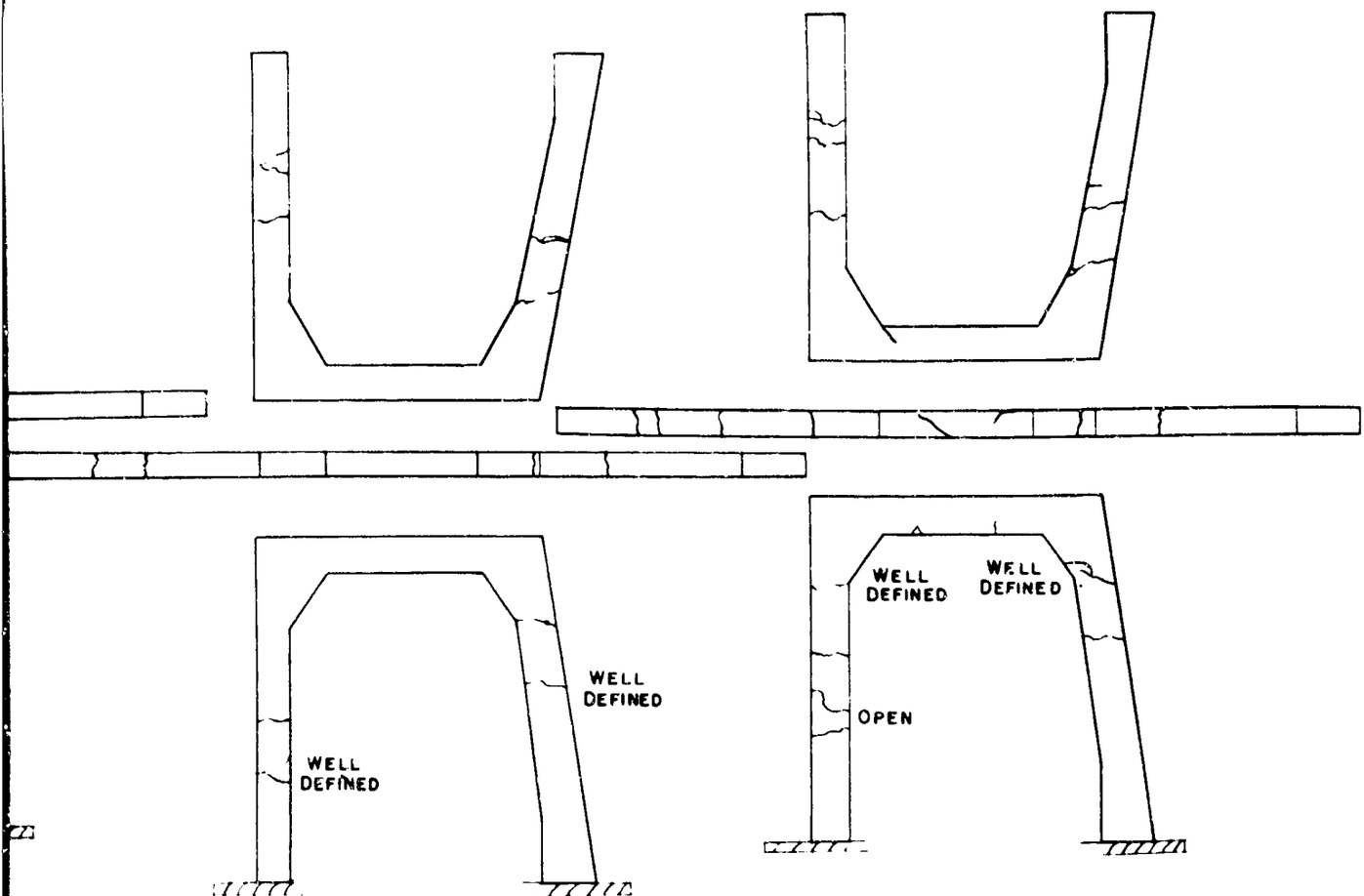
FR

STARBOARD WALL — FACING FWD.

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

5 0 5 10

GRAPHIC SCALE IN FEET



FR 23 TO 25

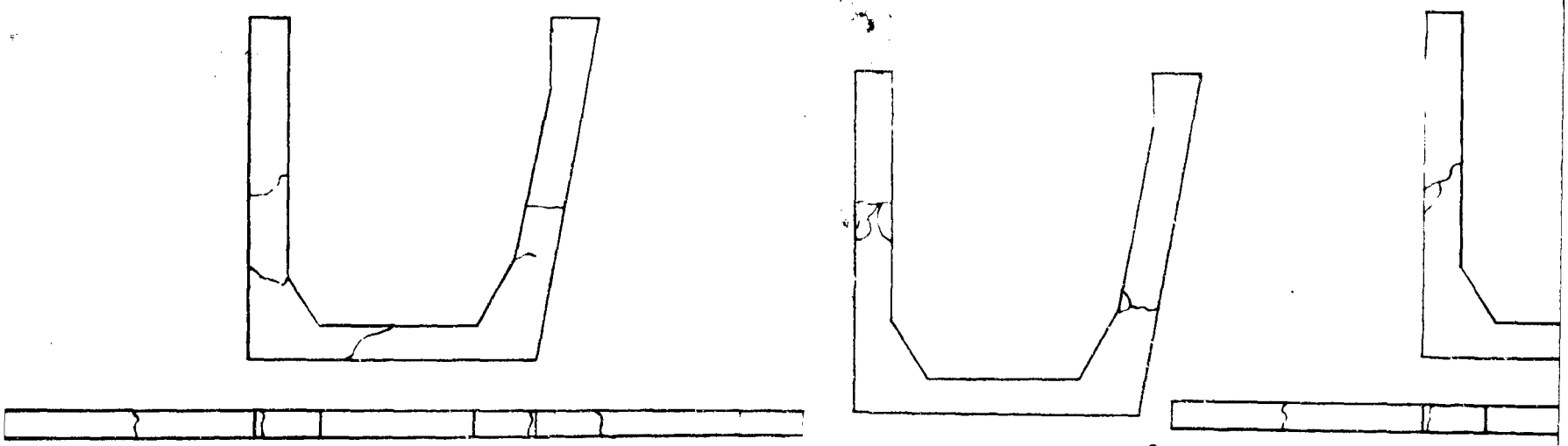
FR. 26 TO 29

STARBOARD WALL — FACING FWD.

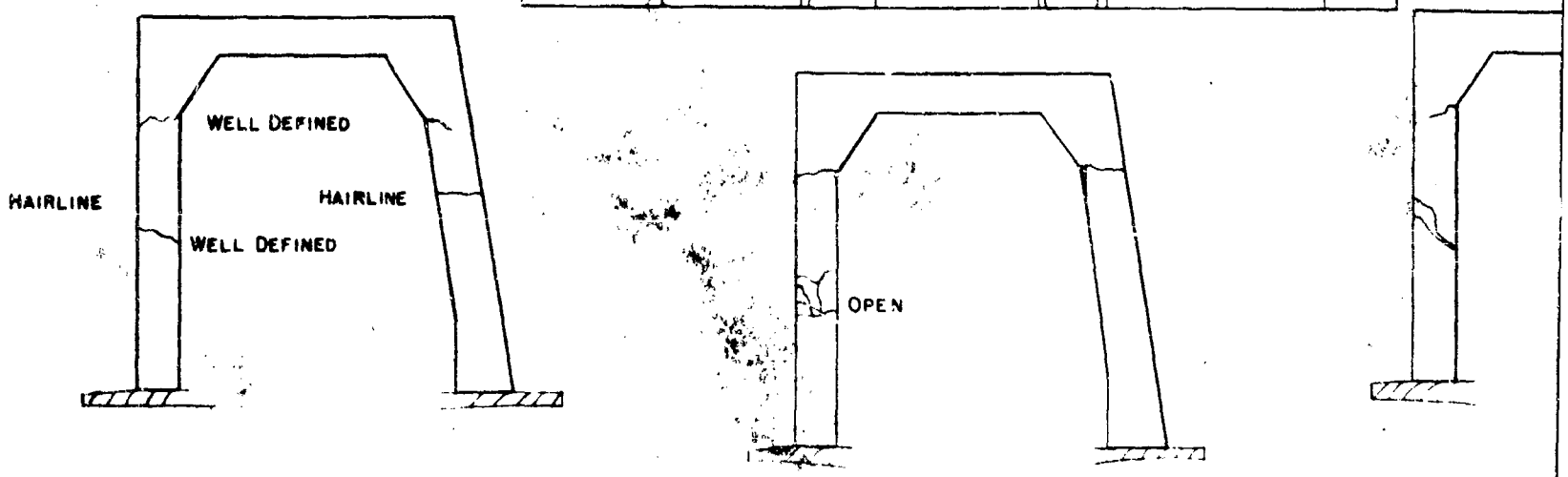
ARDC - 13
CRACK SURVEY AFTER TEST ABLE

5 0 5 10

GRAPHIC SCALE IN FEET



SPALLING



FR. 28 TO 34

FR. 35 TO 37

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STARBOARD WALL - FACING FWD

ARDC - 13
CRACK SURVEY AFTER TEST ABLE

5 0 5 10

GRAPHIC SCALE IN FEET

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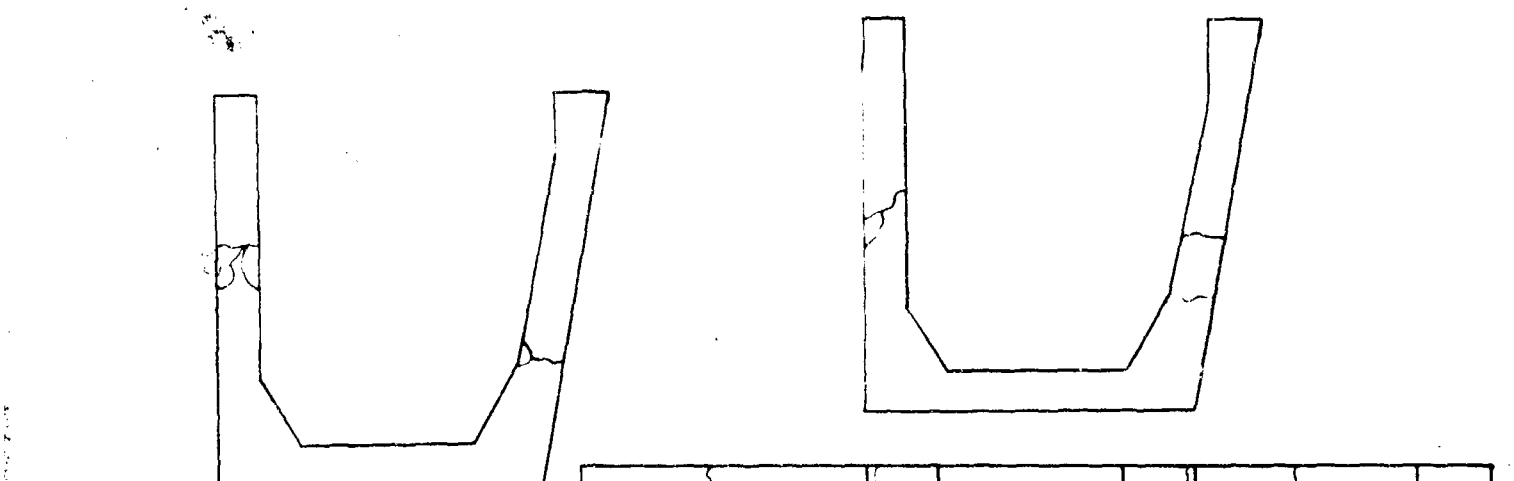

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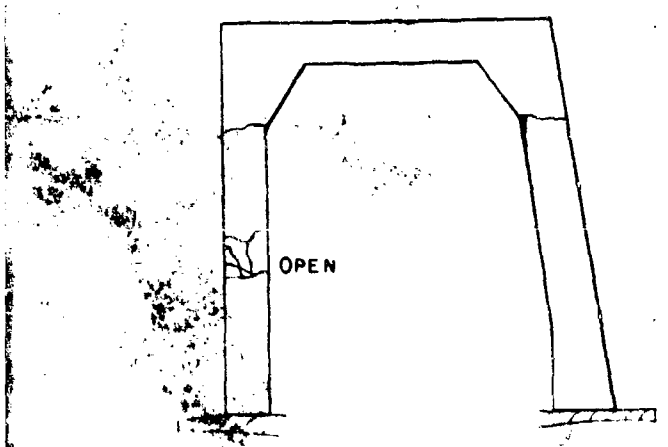
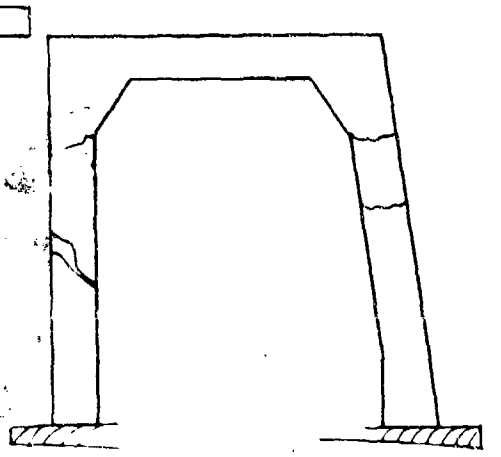


FR. 35 To 37



FR. 38 To 44

ARBOARD WALL - FACING FWD

ARDC - 13

K SURVEY AFTER TEST ABLE

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GRAPHIC SCALE IN FEET

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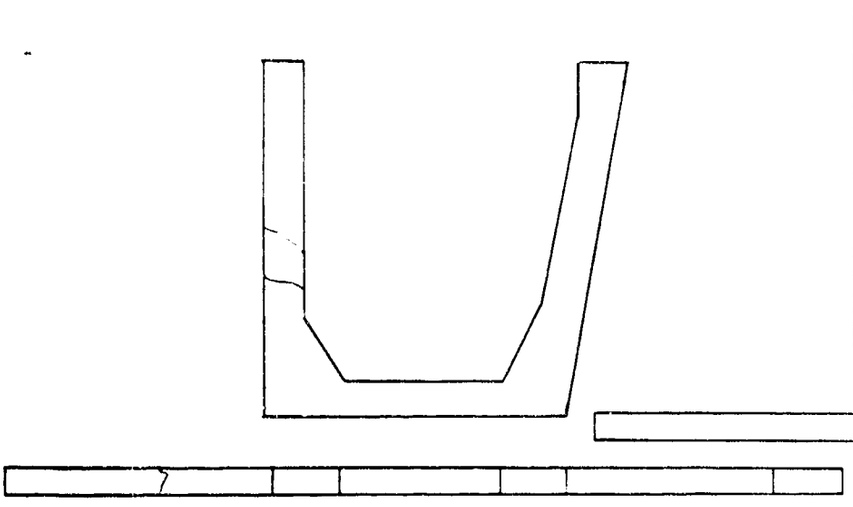
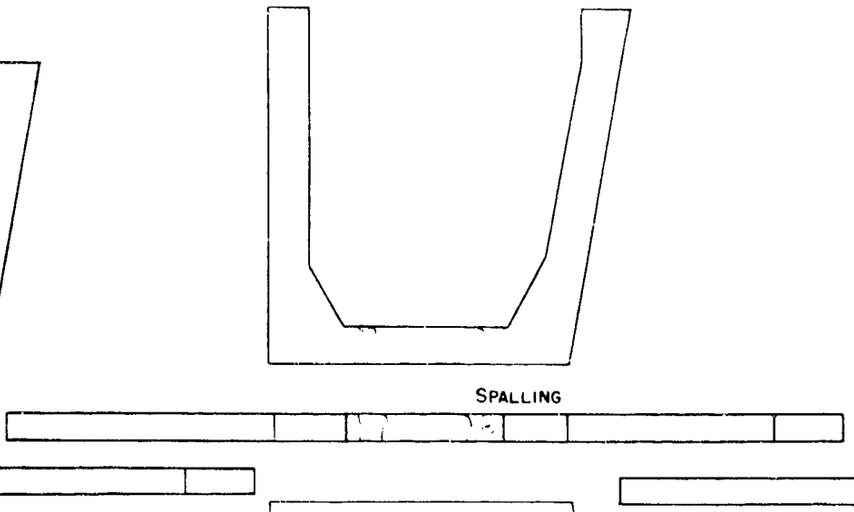
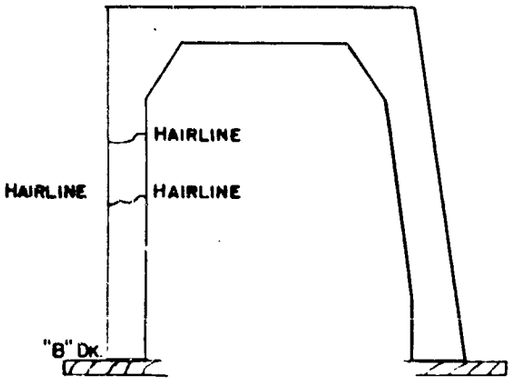
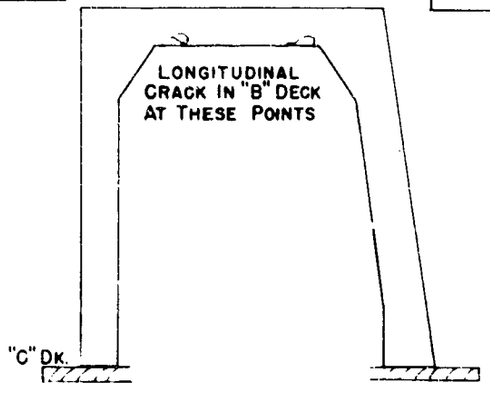






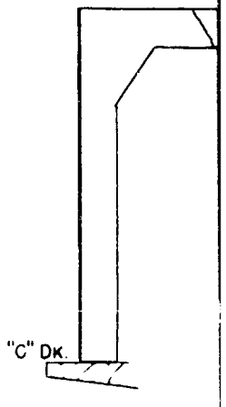
FR. 38 TO 54

STARBOARD WALL – FACING FWD.



FR. 24 TO 36

STARBOARD WALL – FACING FWD.



FR.

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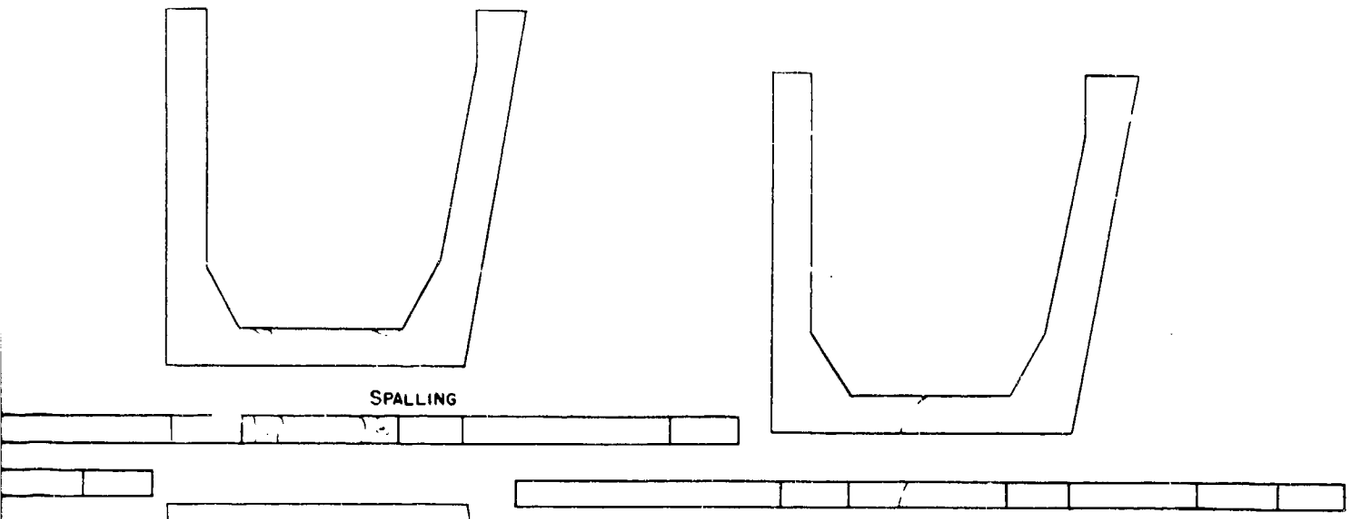
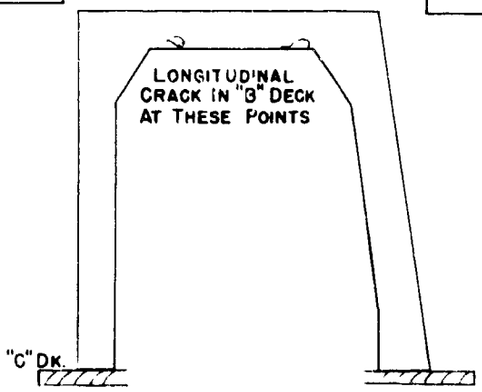
ARDC - 13

CRACK SURVEY AFTER TEST ABLE

5 0 5 10

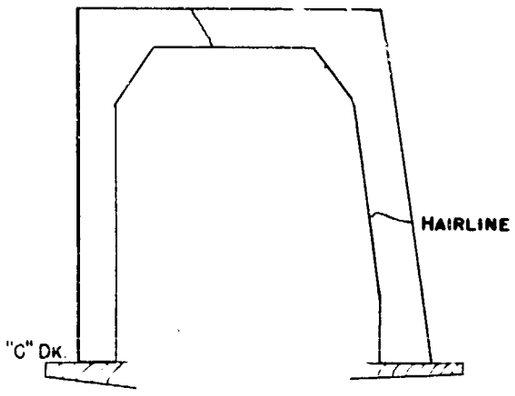
GRAPHIC SCALE IN FEET





FR. 24 TO 36

STARBOARD WALL – FACING FWD.



FR. 45 TO 52

PORT WALL

ARDC - 13

CRACK SURVEY AFTER TEST ABLE

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GRAPHIC SCALE IN FEET

SHEET

LISTING OF PHOTOGRAPHS

APPENDIX B

PRE-TEST ABLE

ARDC-13

Series	Number	Description
BA-CR-66 927	6	Port beam - exterior
Do:	7	" " "
Do:	8	Port bow - exterior
Do:	9	" " "
Do:	10	Stern - exterior
Do:	11	Equalizer valve blank flange
Do:	12	Flanged fill and discharge valve
BA-CR-66-488	3	Crack port forward wing wall
Do:	4	Overall view dock floor facing aft
Do:	5	Keel block bolts (as bent)
Do:	6	Forward face port wing wall
Do:	7	Forward face st'bd wing wall
Do:	8	Army QMC water tank on deck fl.
Do:	9	Anchor and chain fittings, port bow
Do:	10	Army QMC drums on dock floor
Do:	11	Anchoring of blast tower.
BA-CR-66-505	1	Port bow mooring spud.
Do:	2	Blast tower, port wing wall f'wd.
Do:	3	Anchor windlass, control gear wing wall f'wd.
Do:	4	Catwalk, amidship, facing aft
Do:	5	Control house, st'bd wing wall
Do:	6	General view dock floor, facing f'wd from catwalk
Do:	7	Details of wood walkway, inside facing port wing wall
Do:	8	Port wing wall, facing aft from st'bd wing wall
Do:	9	Signal arms, st'bd wing wall, top deck
Do:	11	Plunger type scratch gage (unset)
Do:	12	Scratch gage tower, "B" deck
BA-CR-66-506	2	Typical strain gage rosette, outboard wall, port wing wall, inside, amidships
Do:	3	Scratch gage tower base, "C" deck
Do:	4	Scratch gage tower, passing thru "B" deck

S E C R E T

Series	Number	Description
BA-CR-66-506	5	Anchor windlass and foundations, port wing wall "C" deck
Do:		
Do:	6	Typical single strain gage installation
Do:	7	Generators, 100kw, "C" deck
Do:	8	Overall view, generators
Do:	9	Control panel, "C" deck
Do:	10	Typical frame construction, interior "B" deck, st'bd wing wall
Do:	11	Typical frame construction, interior "C" deck st'bd wing wall
Do:	12	View port bow
BA-CR-66-76	2	Ship's bell, mounted on blast gage tower
Do:	3	Deck marking ARDC-13
BA CR-219-28*	166	Aerial view ARDC-13
Do:	167	Aerial view ARDC-13
		YO-160
BA-CR-62-356	1	Exterior - Bow-on
Do:	2	" Port bow
Do:	3	" Port beam
Do:	4	" Port quarter
Do:	5	" Stern
Do:	6	" St'bd quarter
Do:	7	" St'bd beam
Do:	8	" St'bd bow
BA-CR-65-106	1	Exterior - bow-on in array
Do:	2	" St'bd bow
Do:	3	" St'bd beam
Do:	4	" St'bd quarter
BA-CR-65-105	9	Exterior - Port beam
Do:	10	" Port bow
Do:	11	" Port quarter
Do:	12	" Stern
BA-CR-57-229	5	Topside - forward looking aft
Do:	6	Aft - looking f'wd to bridge
Do:	7	Bridge aft - looking forward

* Secret Photographs

YO-160

Series	Number	Description
BA-CR-93-96	1	Starboard wall, deck rail at forecastle deck
Do:	2	Pilot house
Do:	3	Pipes and valves, amidships
Do:	4	Column, starboard poop deck
Do:	5	Column, port poop deck
Do:	6	View of fan tail
BA-CR-93-982	6	Damage to st'bd bow railing
Do:	7	Chipped concrete at bow
Do:	8	Damage along port bow rail
Do:	9	View of forecastle deck
Do:	10	Port rail and main deck, aft
Do:	11	St'bd rail and main deck, aft
Do:	12	Forward catwalk

YOG-83

BA-CR-82-85	1	St'bd side, abaft abeam
Do:	2	St'bd quarter
Do:	3	From top of pilot house looking fw'd
Do:	4	From top of pilot house looking fw'd
Do:	5	From forecastle looking aft, port side
Do:	6	" " " " st'bd side
Do:	7	From top of pump house looking aft
Do:	8	Port side, abaft abeam
Do:	9	Port side, forward abeam
Do:	10	St'bd side, forward abeam

AFTER TEST ABLE

YOG-83

AA-CR-227-91	22	Port side abeam
Do:	23	Port side abaft abeam
Do:	24	Stern
Do:	25	St'bd abaft abeam
Do:	26	St'bd beam
Do:	27	St'bd, forward abeam
Do:	28	Bow
Do:	29	Port side, fw'd abeam

YOG-83

Series	Number	Description
AA-CR-82-1829	6	View of deck beam - Pump room house
Do:	7	View of wooden bridge house
Do:	8	" " " " "
Do:	9	Life raft frame and foundations

2 JULY 1946

ARDC-13

AA-CR-98-1962	7	Aft dock floor and st'bd wing wall
Do:	8	Fw'd dock floor and st'bd wing wall
Do:	9	Catwalk wreckage
Do:	10	Deck floor fw'd from aft st'bd wing wall
Do:	11	Stern and dock floor
Do:	12	Top view crane near stern
AA-CR-98-1963	1	Pontoon bridge, stern of dock, upside down
Do:	2	Torpedo tube and spoon, stern ARDC-13
Do:	3	Torpedo tube and spoon, stern ARDC-13
Do:	4	Torpedo spoon, stern ARDC-13
Do:	5	Crack st'bd wing wall inside aft
Do:	6	Running light frame (from APA)
Do:	7	General view fw'd from port side
Do:	8	St'bd wall inboard draft gage
Do:	9	Crane on dock floor looking aft
Do:	10	Army water tank
Do:	11	Ladder, st'bd wing wall fw'd
Do:	12	St'bd wing wall, blast marks
AA-CR-98-1964	1	Crack, port side, top of wing wall
Do:	2	Hatch opening, port top deck, hatch cover gone
Do:	3	Hatch opening on stern showing bent clips
Do:	4	Torpedo tube stern ARDC-13
Do:	5	Signal tower blown over side, St'bd bow
Do:	6	General view bow
Do:	7	" " "
Do:	8	Port bow
Do:	9	Port, fw'd section
Do:	10	Port, after section
Do:	11	Port quarter
Do:	12	Stern

ARDC-13

Series	Number	Description
AA-CR-93-1835	1	General View of Port Bow
Do:	2	General View of Starboard Quarter
Do:	3	General View of Stern showing Dock floor
Do:	4	General View of After Port Quarter
Do:	5	General View of Port Quarter
Do:	6	General View of Port Beam
Do:	7	General View of Port Bow
Do:	8	Head on View of Bow
Do:	9	View of Damage Material on Dock Floor Facing Forward
Do:	10	View of Damage Material on Dock Floor Facing Aft.
Do:	11	General View of Port Wing Wall Facing Aft
Do:	12	General View of Starboard Wing Wall Facing Aft
AA-CR-93-1988	1	View of Damage to Forward Face of Port Wing Wall
Do:	2	View of Damage to Forward Face of Starboard Wing Wall
Do:	3	Longitudinal Crack in "A" Deck, Port Wing Wall, Frame 25 Facing Aft
Do:	4	Longitudinal Crack in "A" Deck, Port Wing Wall, Frame 25 Facing Forward
Do:	5	View of Blown Out Hatch, "A" Deck, Port Wing Wall at Frame 40.
Do:	6	View of Damage to Crane on Dock Floor from Top of Port Wing Wall
Do:	7	View of "A" Deck Starboard Wing Wall from After End of Port Wing Wall
Do:	8	Crack - Inboard Face Starboard Wing Wall - Amidships - 3' Above Dock Floor
Do:	9	Crack - After Face and Inboard Corner of Starboard Wing Wall - 3' Above Dock Floor
Do:	10	Crack - After Face of Starboard Wing Wall
Do:	11	Spalling - Inboard Face Starboard Wing Wall - Frame 40 - 3' Above Fl.
Do:	12	Crack - "A" Deck Starboard Wing Wall at Frame 30 Facing Aft.

Series	Number	Description
AA-CR-93-1986	2	Crack - Spalling - Around Ventilator at Frame 28 - "A" Deck Starboard Wing Wall
Do:	3	View of "A" Deck Port Wing Wall from Starboard Wing Wall
Do:	4	Spalling - Around Ventilator - "A" Deck - Starboard Wing Wall at Frame 38
Do:	5	View of "A" Deck Forward Port Wing Wall from Starboard Wing Wall
Do:	7	Crack - Inboard Face - Port Wing Wall Frame 20-35 - 10' Above Fl.
Do:	8	Crack - Inboard Face - Port Wing Wall - Frame 20-40-2' from Top
Do:	9	Crack - "B" Deck Port Wing Wall - Frame 18
Do:	10	Crack - "B" Level - Port Wing Wall - Frame 20 - Outboard Wall - Inside Face
Do:	11	Crack - "B" Level - Port Wing Wall - Frame 26 - Top Inside Face of Outboard Wall
Do:	12	Crack - "B" Level - Port Wing Wall - Frame 24 - Top
AA-CR-93-1987	1	Longitudinal Crack - Inside Face - Outboard Wall - Frame 24 - Port
Do:	2	View of Mess Table Ripped Off Fastenings to "B" Deck
Do:	3	View of Damage to Sick Boy "B" Deck
Do:	4	Crack in Transverse Bulkhead at Frame 44, Port Wing Wall
Do:	5	View of Dock Under Tow - Stern
Do:	7	" " " " " - Starboard Bow
Do:	8	View of Dock Under Tow - Port Bow
Do:	9	" " " " " - Port Quarter

4 JULY 1946

ARDC-13

Series	Number	Description
AA-CR-92-1776	9	Blast shadow, face st'bd wing wall, Fr. 6 to 13
Do:	10	" " " " " wall, Fr. 12 to 19
Do:	11	" " " " " wall, Fr. 19 to 27
Do:	12	" " " " " wall, Fr. 27 to 34
AA-CR-92-1777	1	Blast shadow inside face st'bd wing wall Fr. 34 to 44
Do:	2	" " " " " wing wall Fr. 44 to 49
Do:	3	" " " " " wing wall Fr. 49 to 56
Do:	4	Fr. 36 below "A" deck outboard shell st'bd wall
Do:	5	Fr. 36 between "A" & "B" deck, Fr. 27 to 28 near inboard shell, st'bd wall
Do:	7	Bottom of "A" deck, Fr. 27 to 28 near outboard shell, st'bd wall
Do:	8	"B" deck Fr. 25 to 26 near outboard shell, st'bd wall
Do:	10	Fr. 29 below "B" deck near outboard shell, st'bd wall
Do:	11	Fr. 28 below "B" deck near outboard shell, st'bd wall
Do:	12	Inboard shell, Fr. 27 to 28 about 4 feet above "C" deck, st'bd wall
AA-CR-92-1778	1	View of preparations for pumping out dock

5 JULY 1946

YO-160

AA-CR-58-2007	1	General view of stern
Do:	2	General view of st'bd quarter
Do:	3	" " " " "
Do:	4	General view of st'bd beam
Do:	5	" " " " "

S E C R E T

YO-160

Series	Number	Description
AA-CR-58-2007	6	General view of st'bd bow
Do:	7	" " " " "
Do:	8	" " " port "
Do:	9	" " " " beam
Do:	10	General view of blast effects poop deck, port side
Do:	11	" " " " " " deck, port q'tr
Do:	12	" " " " " " deck, port q'tr
AA-CR-58-2008	1	Close up of st'bd q'tr poop deck
Do:	2	View of deck damage facing aft from midships
Do:	3	" " " " " fwd from midships
Do:	4	View of damage to after midship deckhouse
Do:	5	" " " " fwd " deckhouse
Do:	6	Damage to after bulkhead of midship deckhouse
Do:	7	View of port side of midship deckhouse
Do:	8	View of damage to forecastle deck
Do:	9	Blast shadow port side of doc'le deck
Do:	10	Damage to main deck, port side aft
Do:	11	Damage to poop deck at center line
Do:	12	Dished-in effect to tank on main deck aft
AA-CR-58-2009	1	Poop deck, port side aft - Dished-in deck
Do:	2	Poop deck, port side - Dished-in deck
Do:	3	Poop deck, st'bd - Dished-in deck
Do:	4	Interior view of damage to deckhouse - midships
Do:	5	" " " " " " house - midships

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M - 46 BOMB DAMAGE TO ARDC - 13

Series	Number	Description
AA-CR-175-2180	2	Hole in Starboard Wing Wall - Facing Forward - Close-up
Do:	4	Hole in Starboard Wing Wall - General View Forward.
Do:	5	Hole in Starboard Wing Wall - Facing Aft Close-up
Do:	6	Hole in Starboard Wing Wall - General View Aft.
Do:	7	Frame Nos. 12 and 13 - Starboard Wing Wall - Facing Forward.
Do:	8	Frame 12 - Details of Failure - Facing Forward
Do:	9	" " " " " Facing Forward
Do:	10	" " " " " Facing Aft
Do:	11	" " " " " Facing Aft
Do:	12	" " - General View of Damage
AA-CR-175-2181	1	View of Pontoon Moored Astern of ARDC - 13
Do:	2	Army barge " " " ARDC - 13

AFTER ABLE

YOG-83

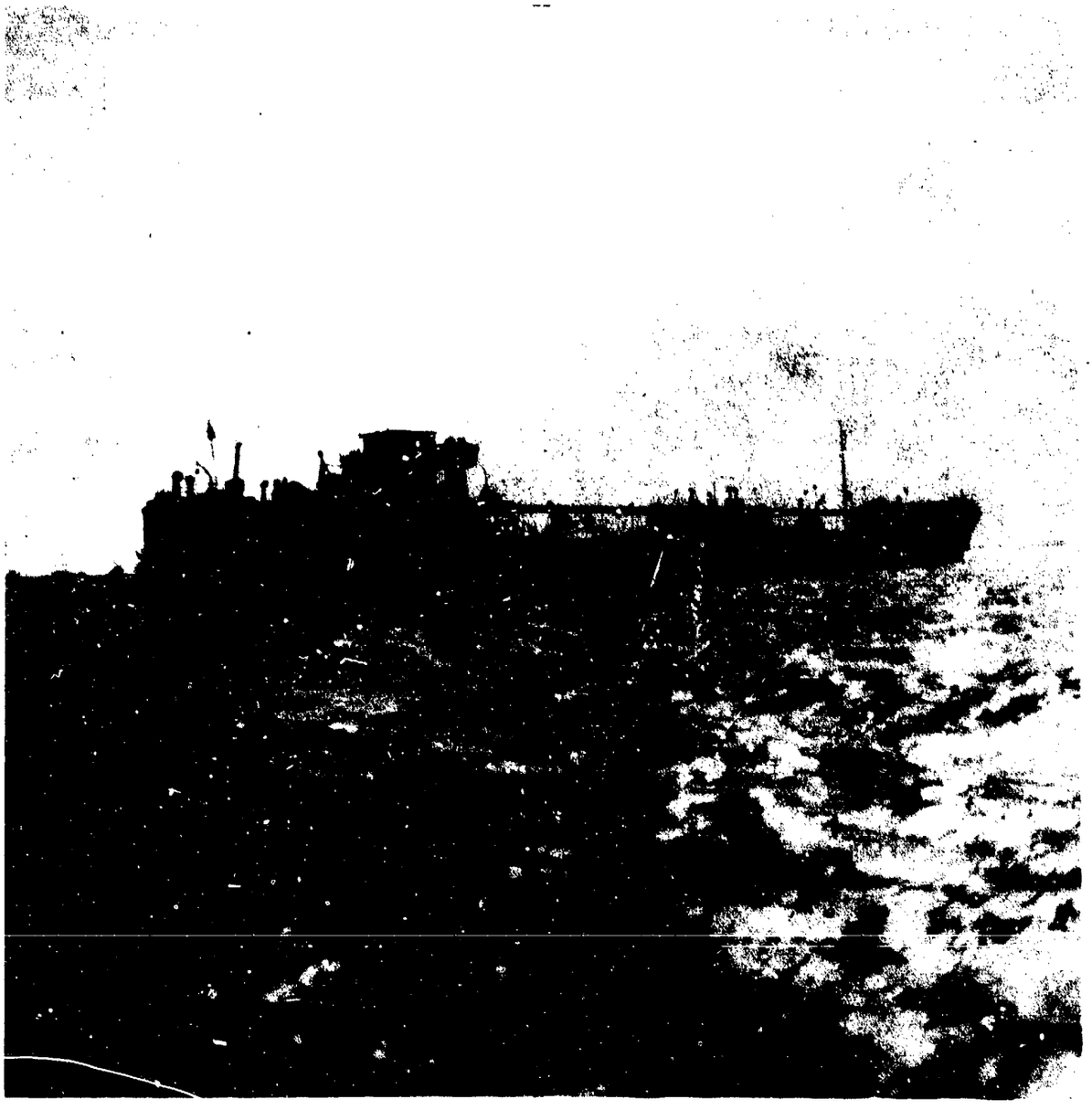
Port Side Abeam

Port Side Abeam - Aloft

5162

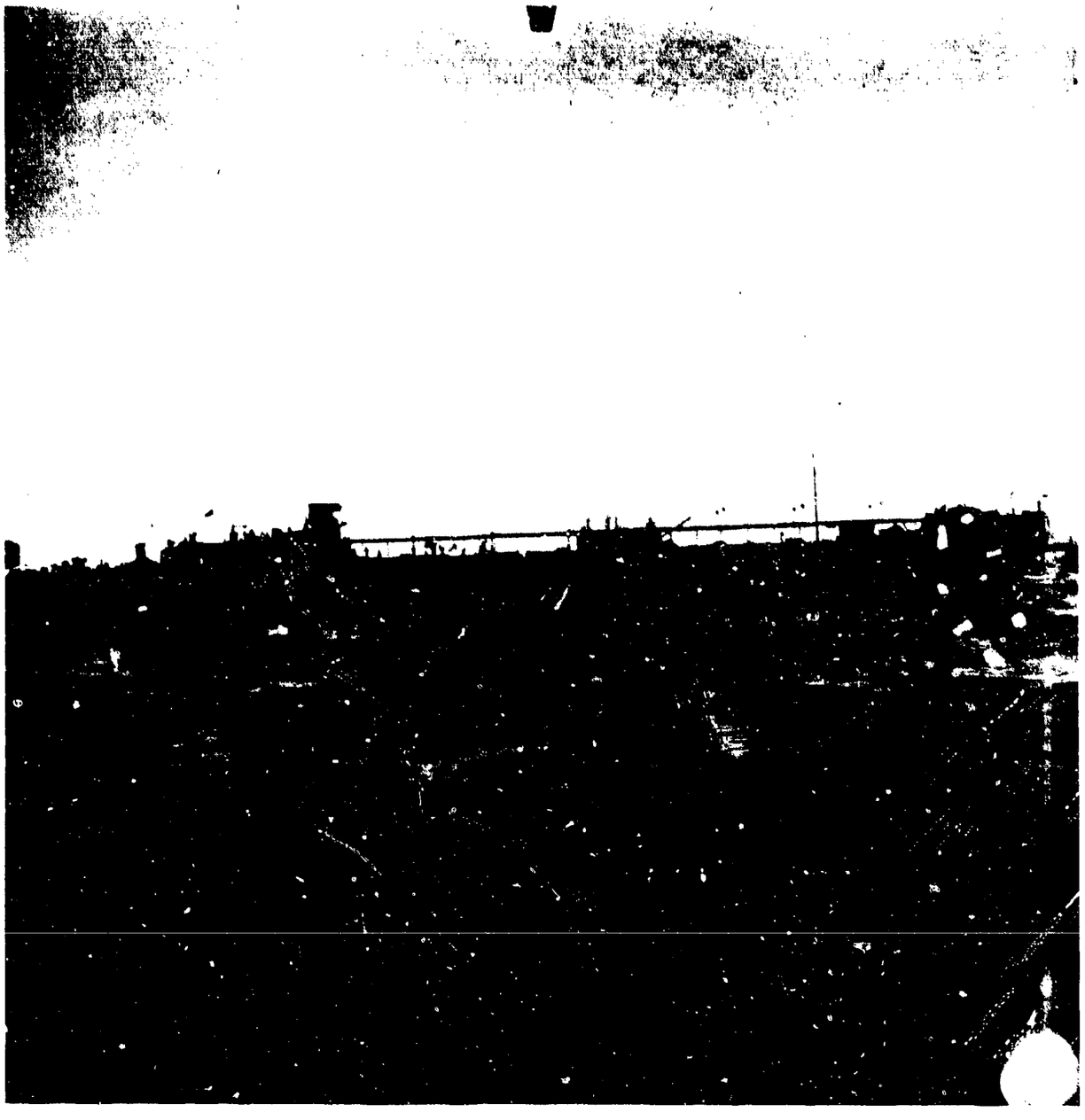
Stern

5162



Starboard Aloft Abeam

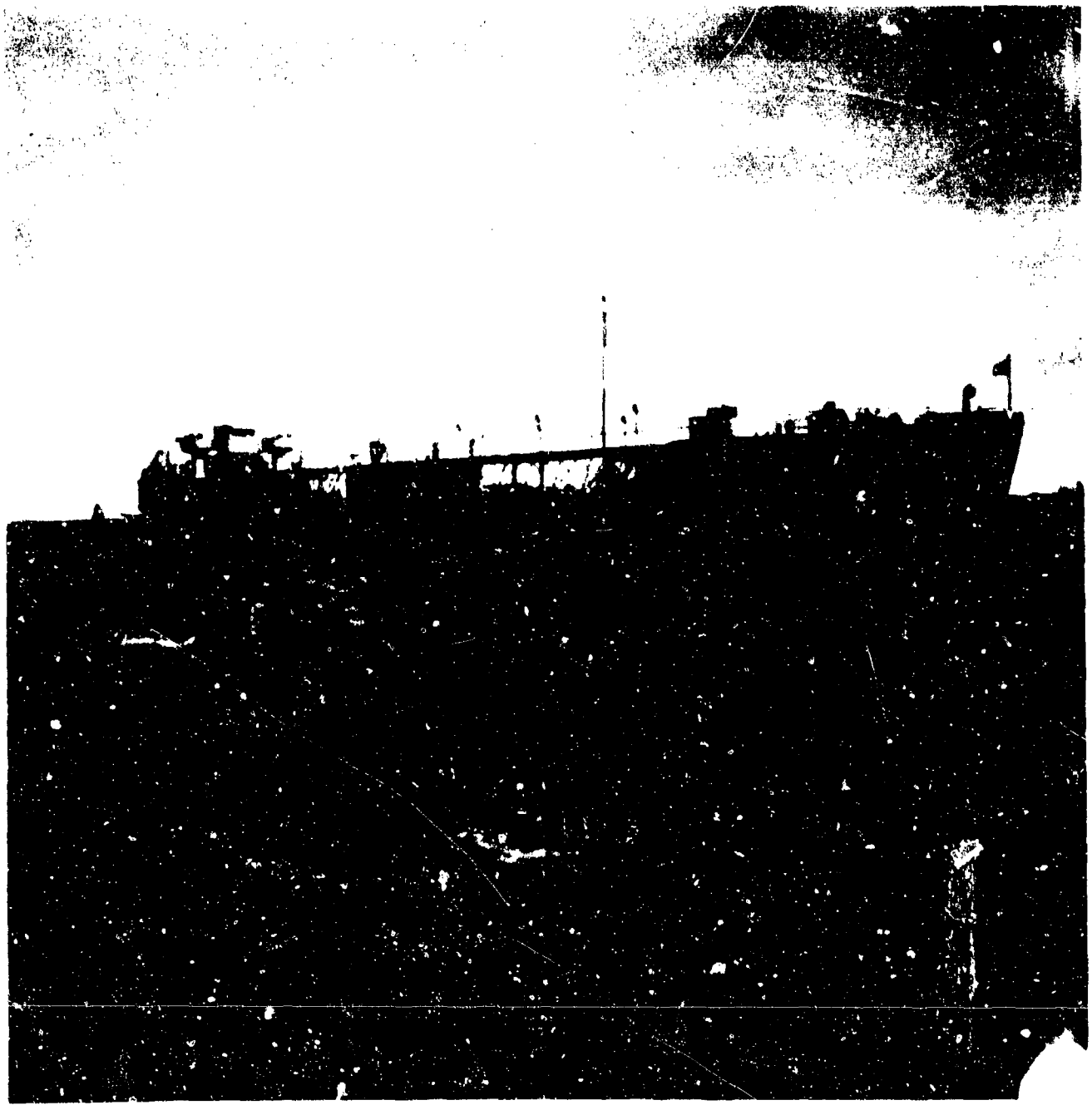
5162



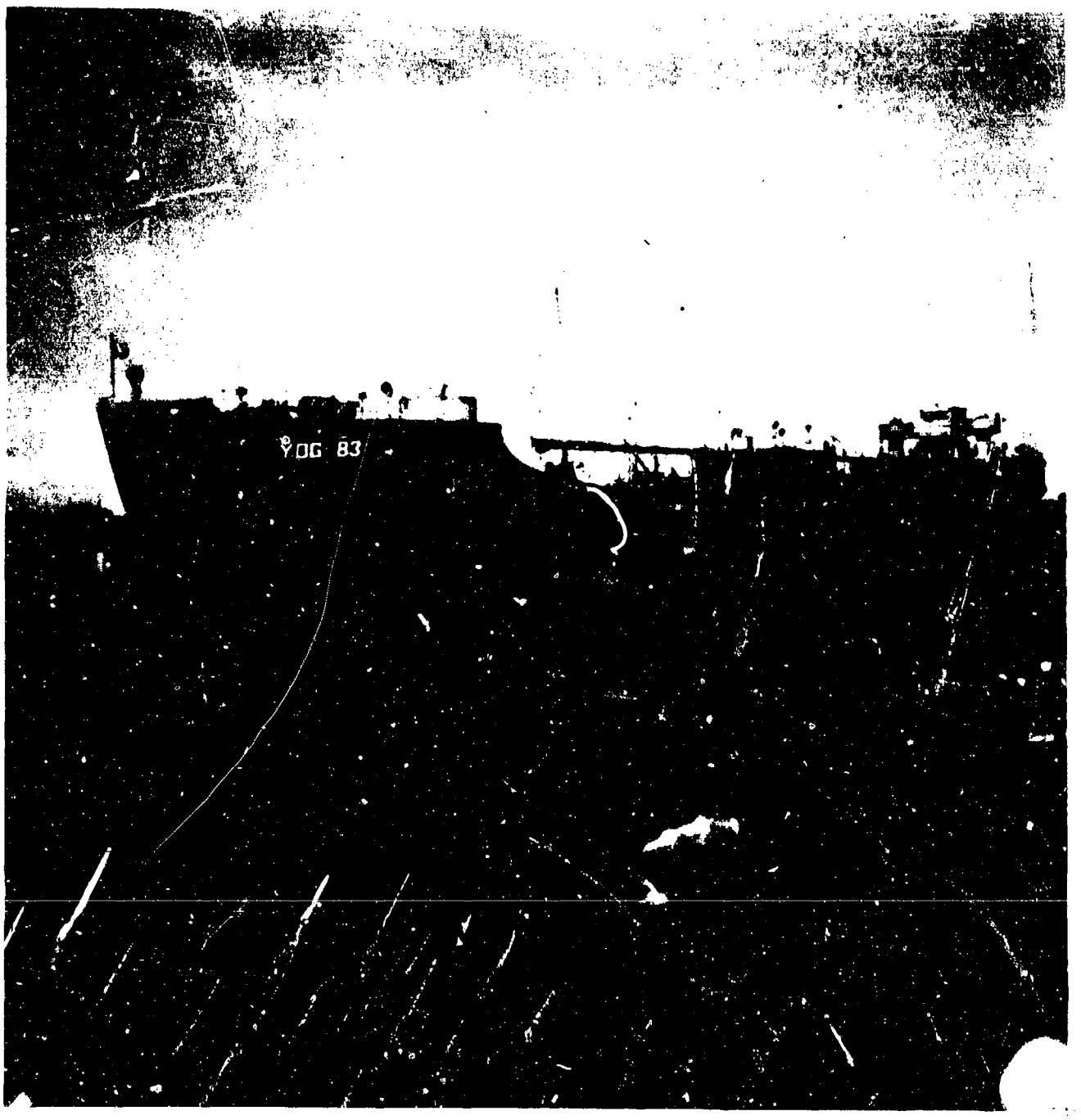
Starboard Beam

Bow

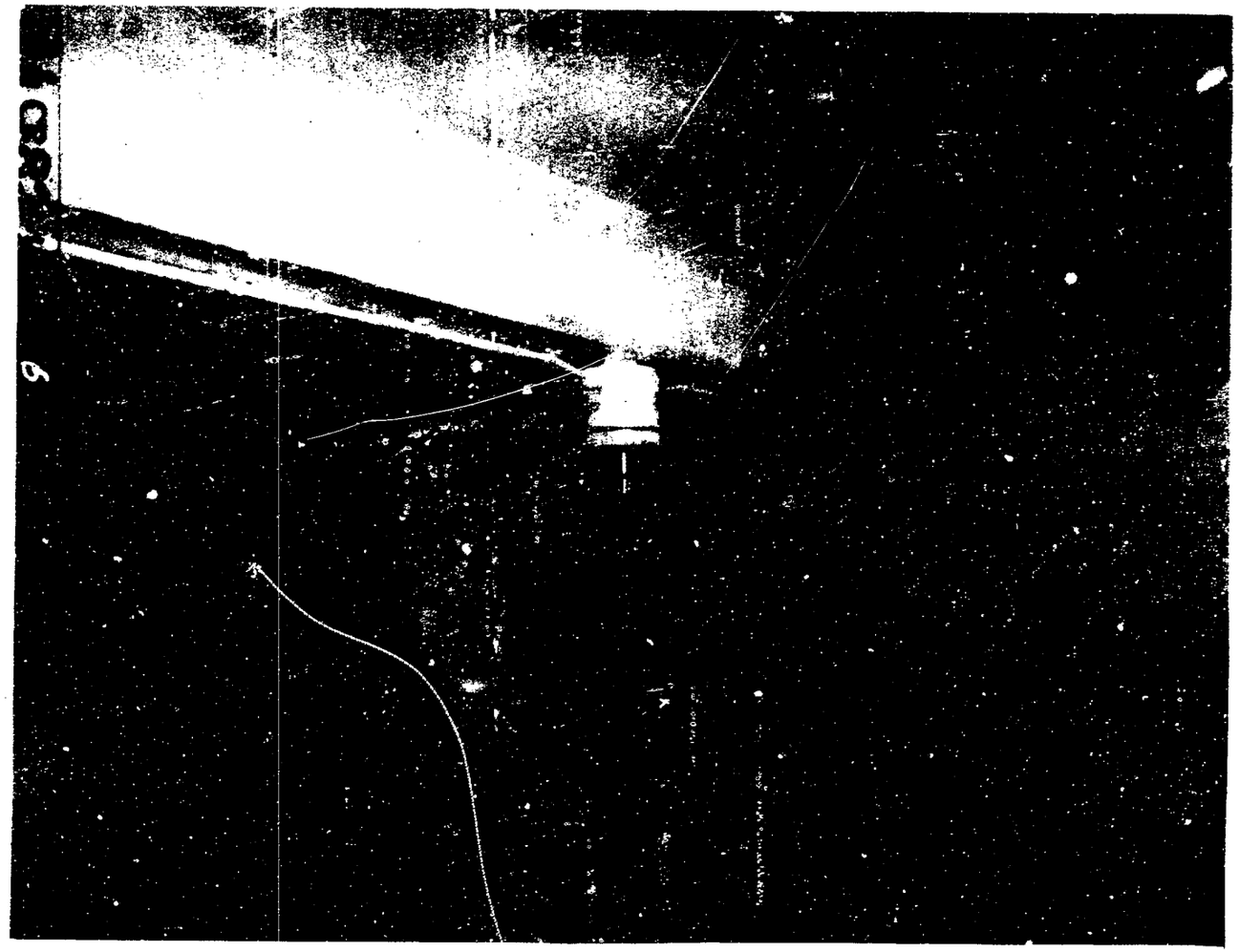
5162



Starboard Forward Abeam



Port Side, Forward Abeam



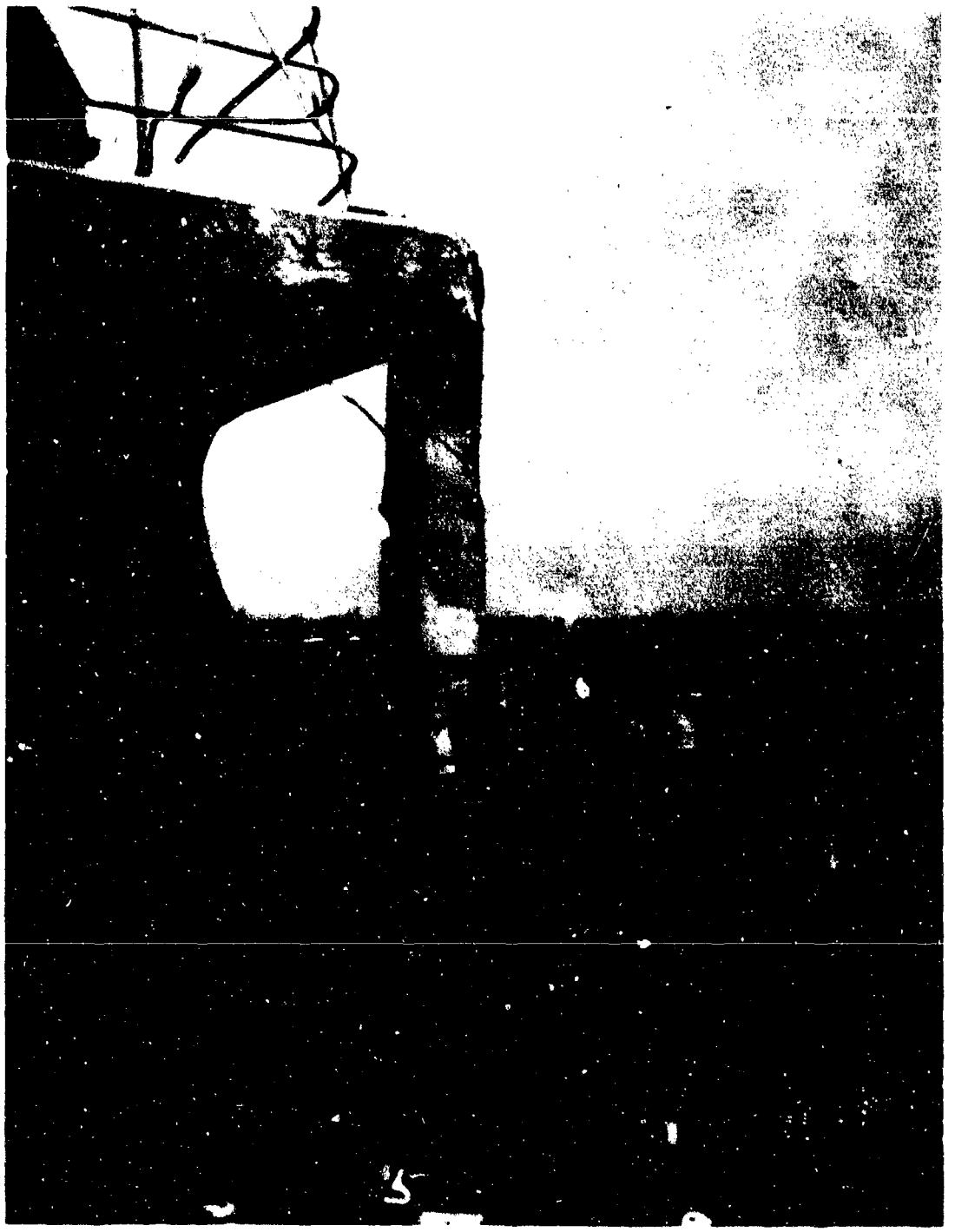
View of Deck Beam Pump Room House

Life Raft Frame and Foundation

BEFORE ABLE

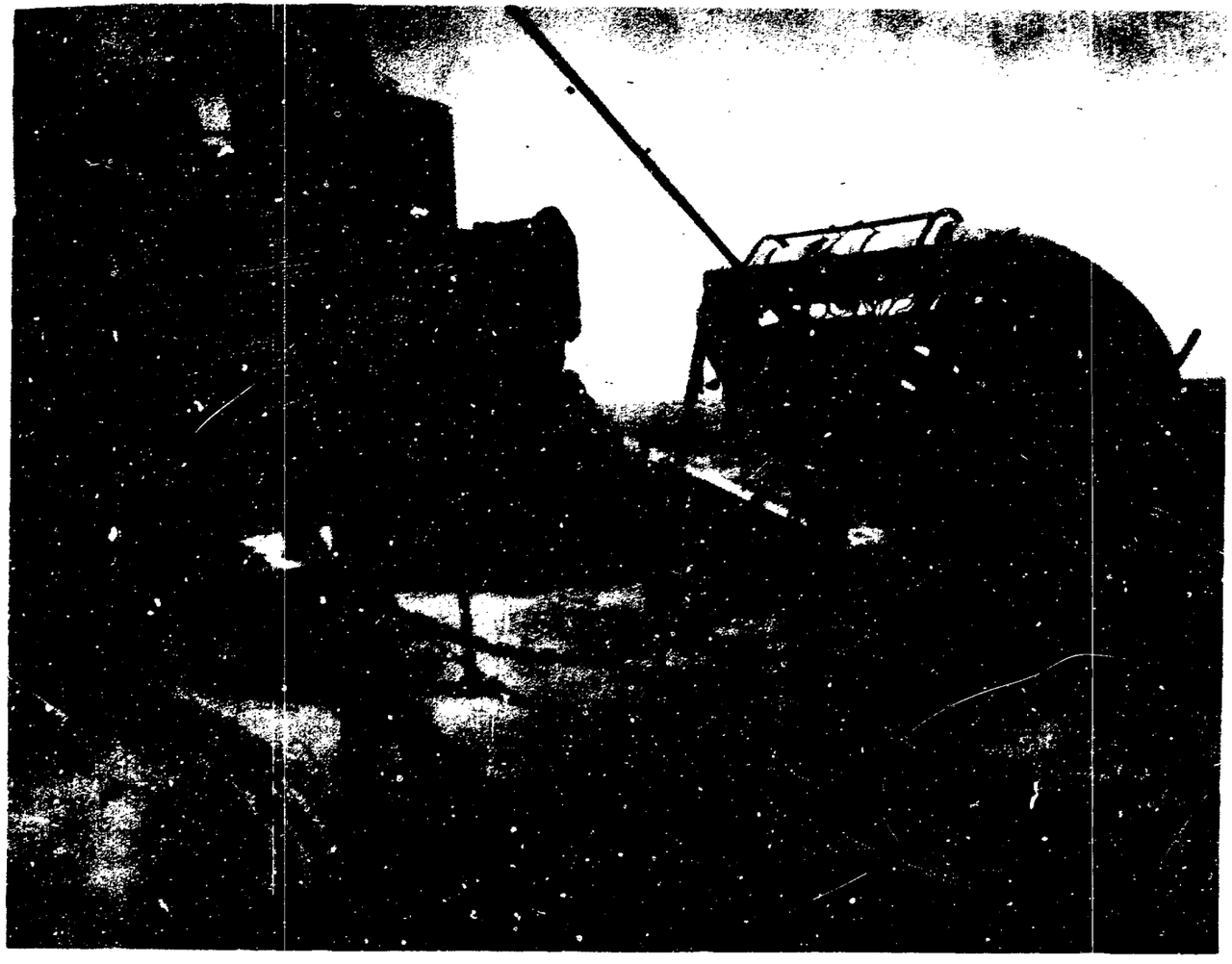
YO-160

View of Fan Tail



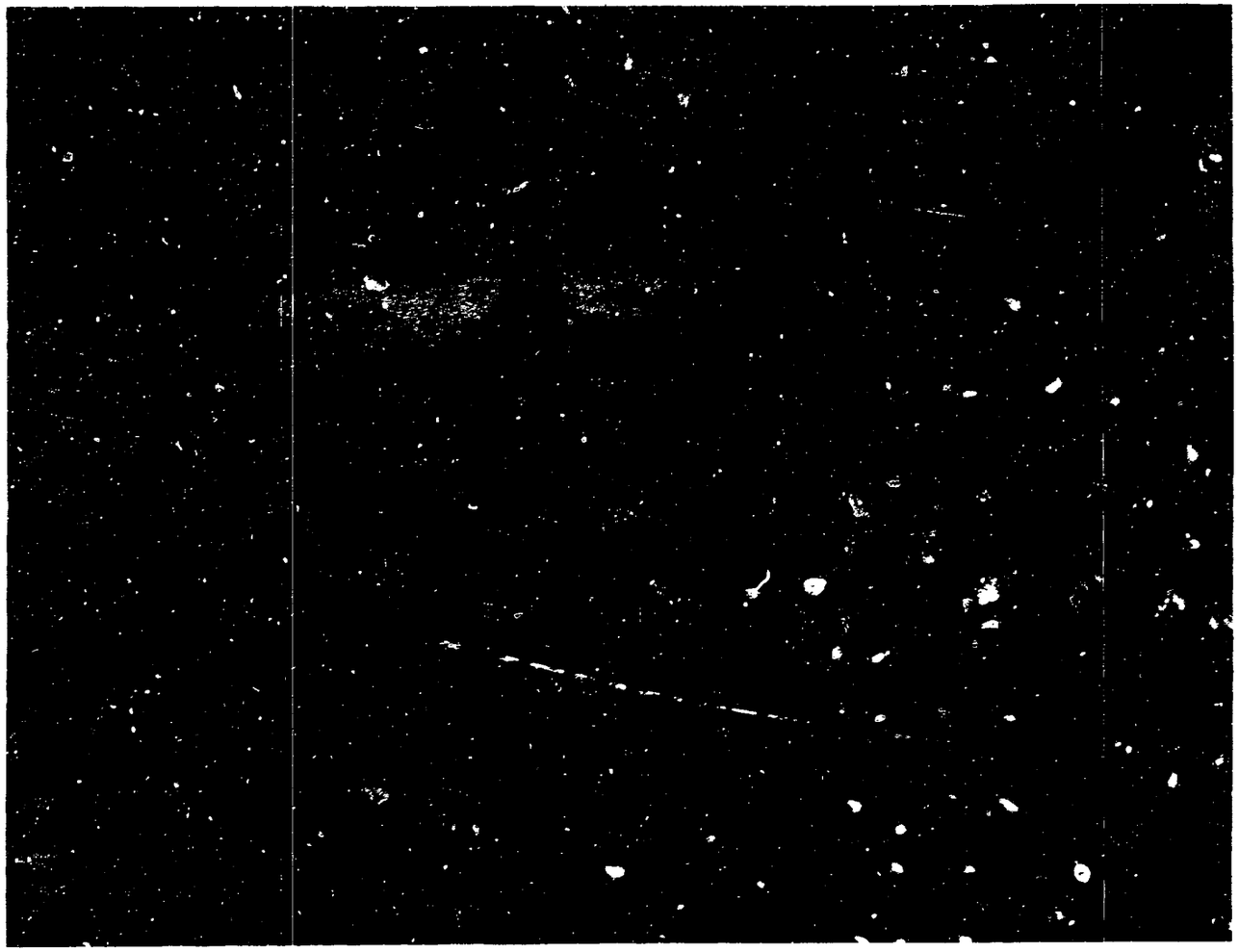
Column - Port Poop Deck

Column - Starboard Poop Deck

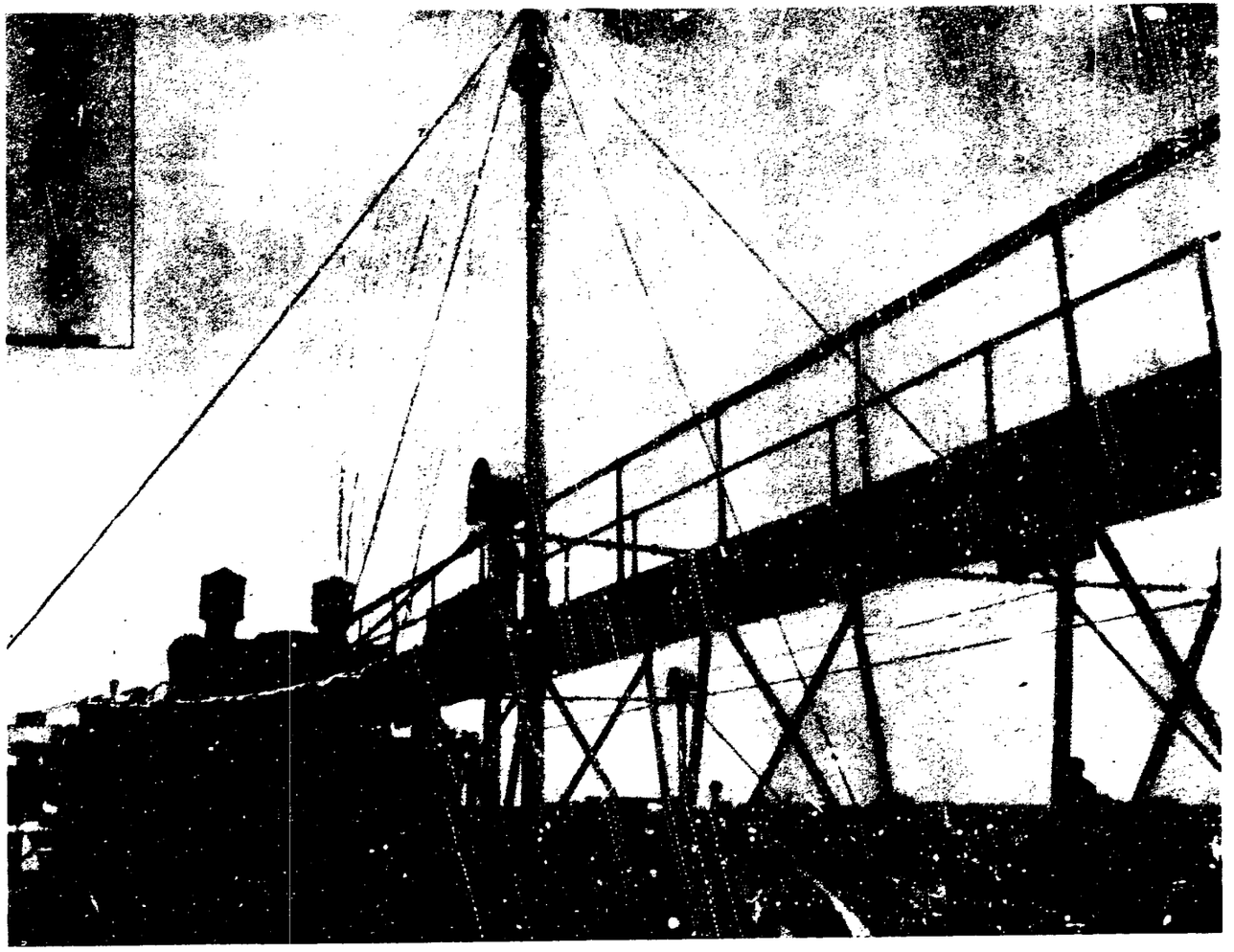


Starboard Wall, Deck Rail at Forecastle Deck

5162



Chipped Concrete at Bow



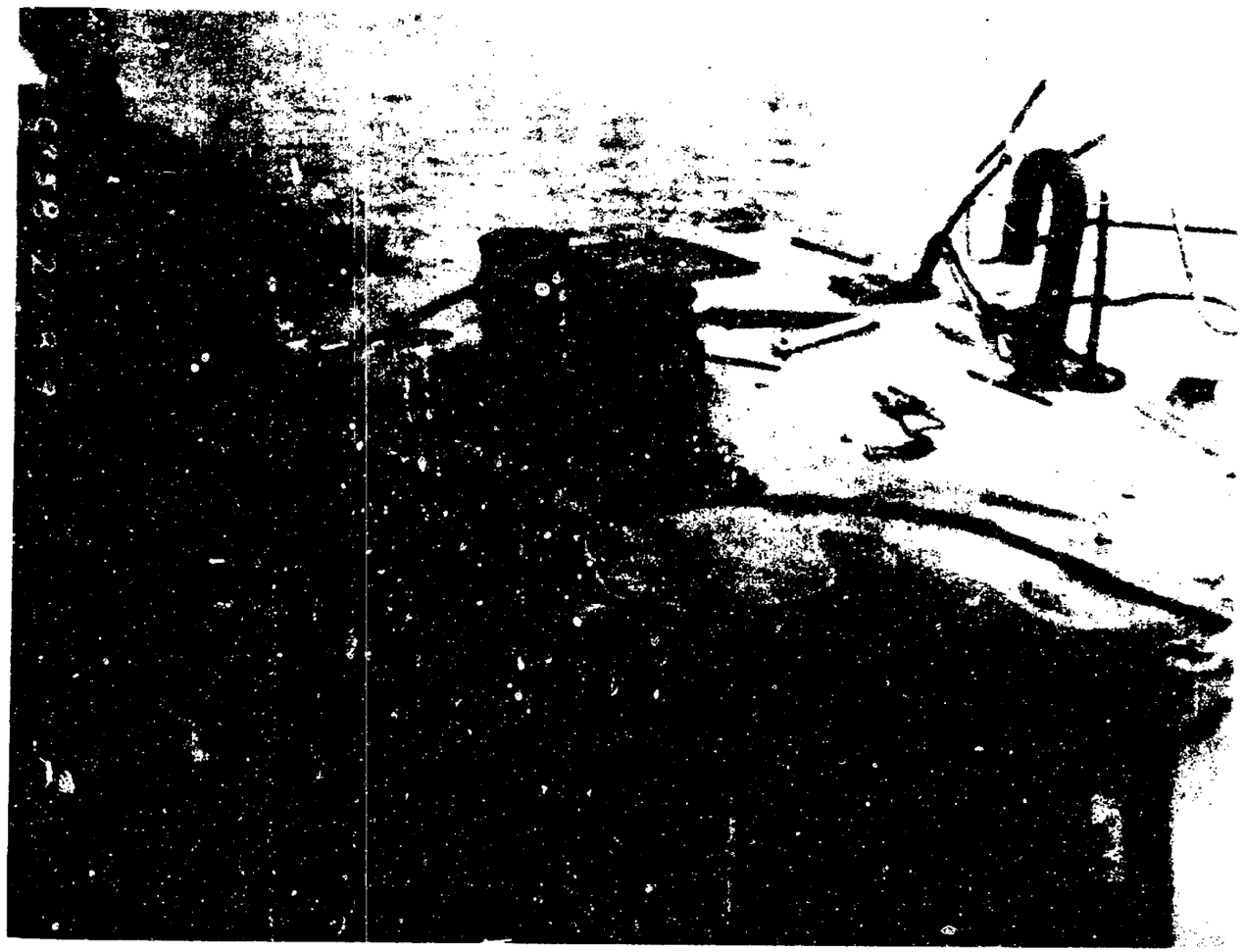
Forward Catwalk

AFTER ABLE

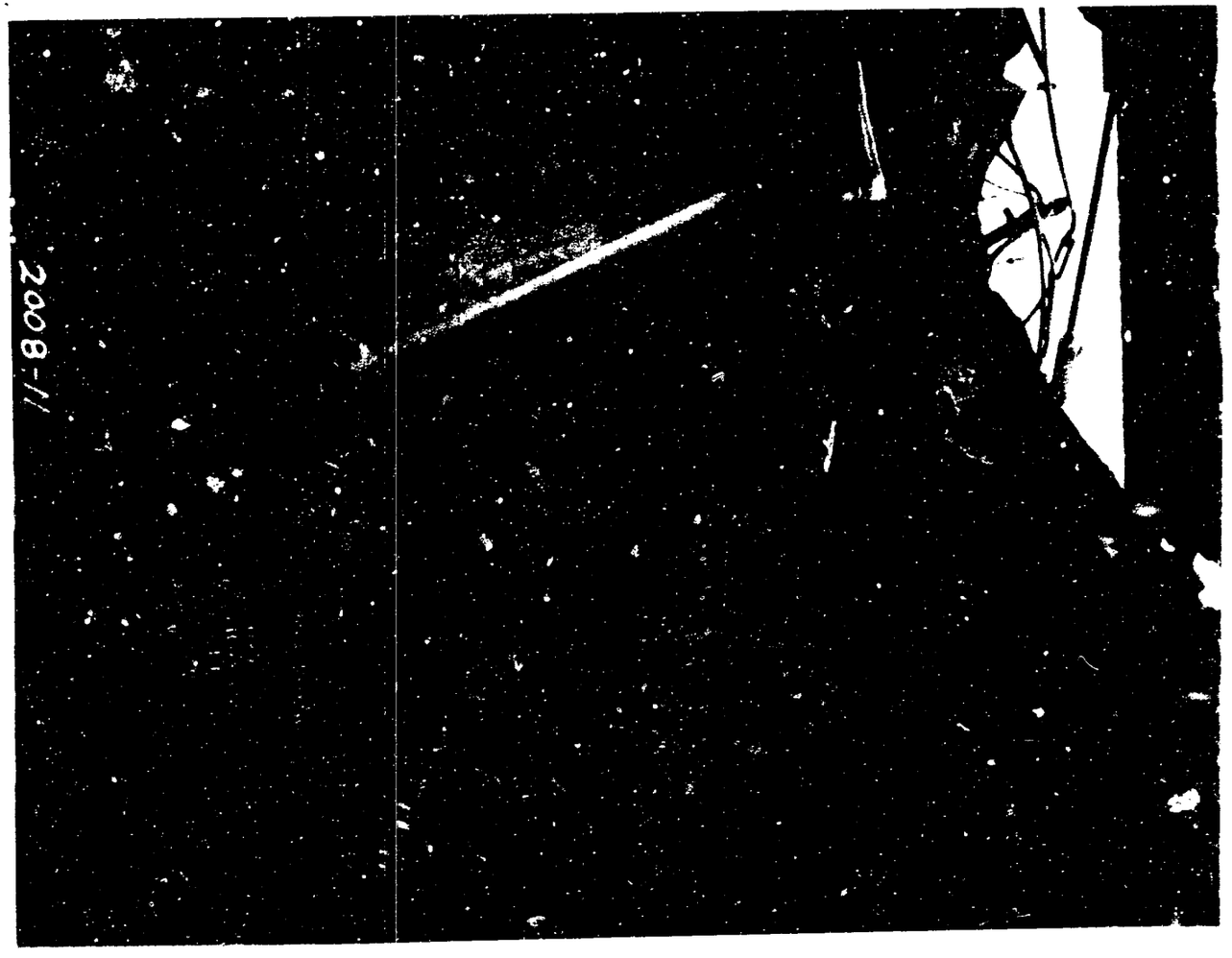
YO-160

View of Port Side of Midship Deck House

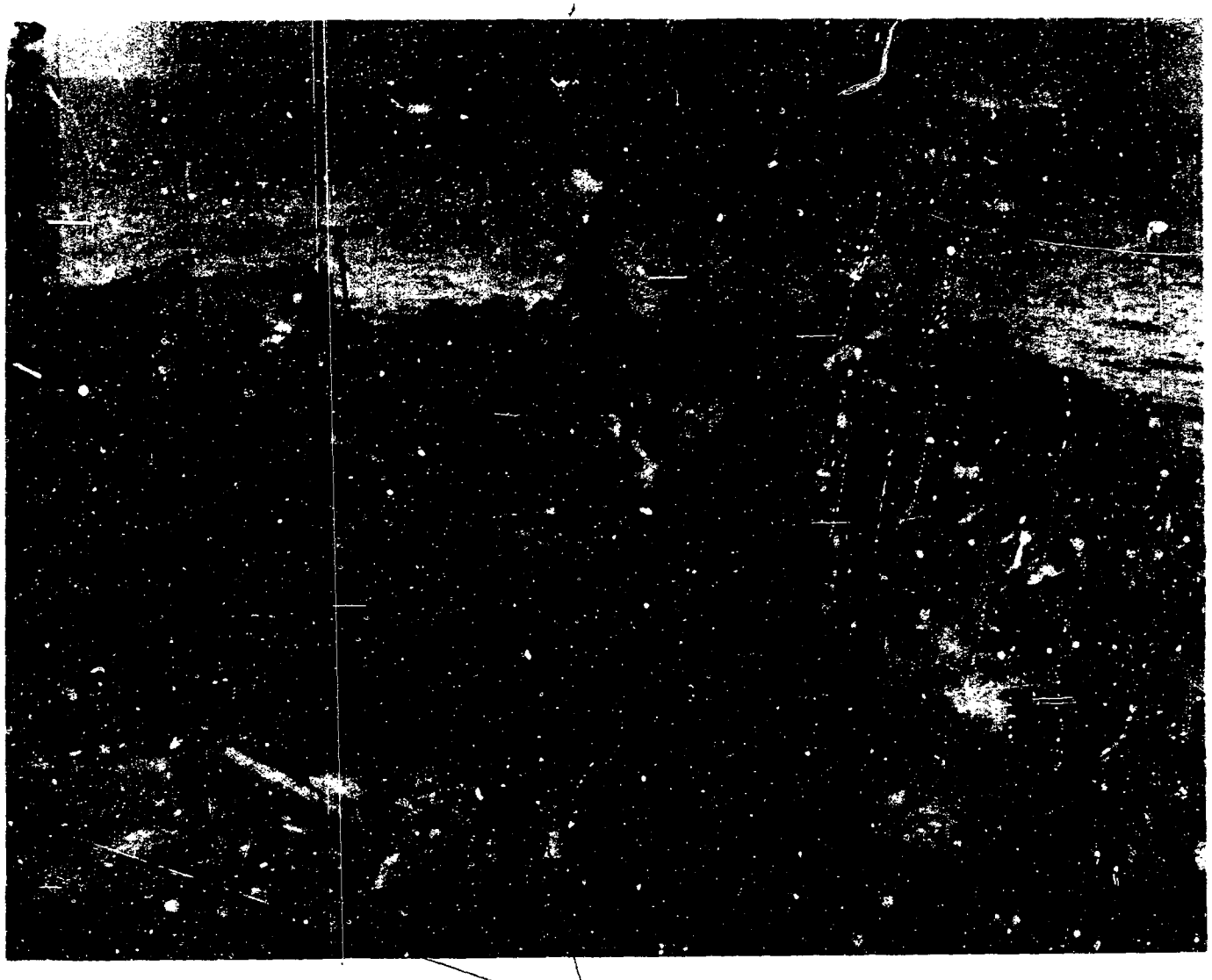
View of Damage to Forecastle Deck



Blast Shadow, Port Side of Forecastle Deck



Damage to Poop Deck at Center Line

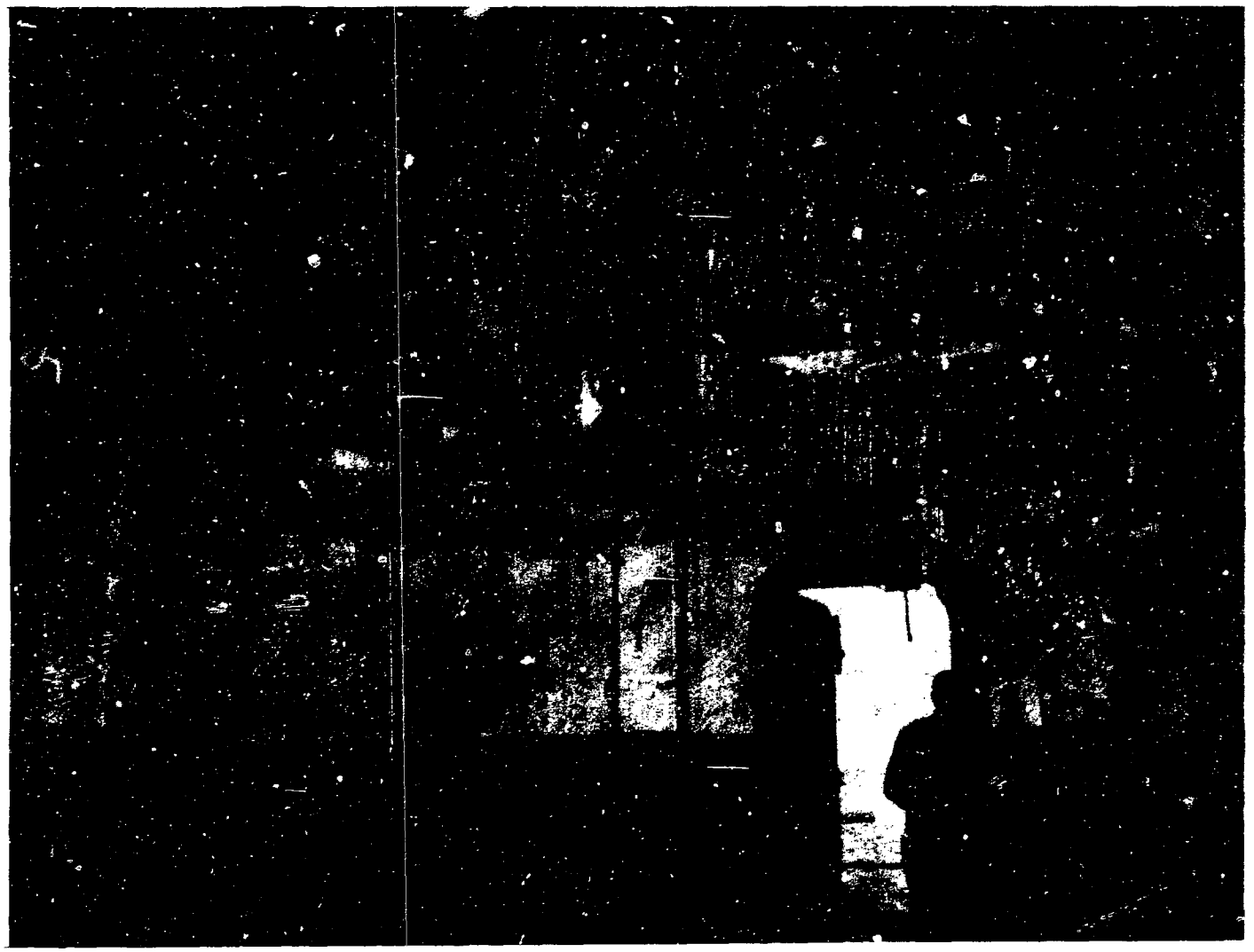


Poop Deck - Port Side Aft, Dished-in Deck

Poop Deck - Port Side, Dished-in Deck

Poop Deck - Starboard Dished-in Deck

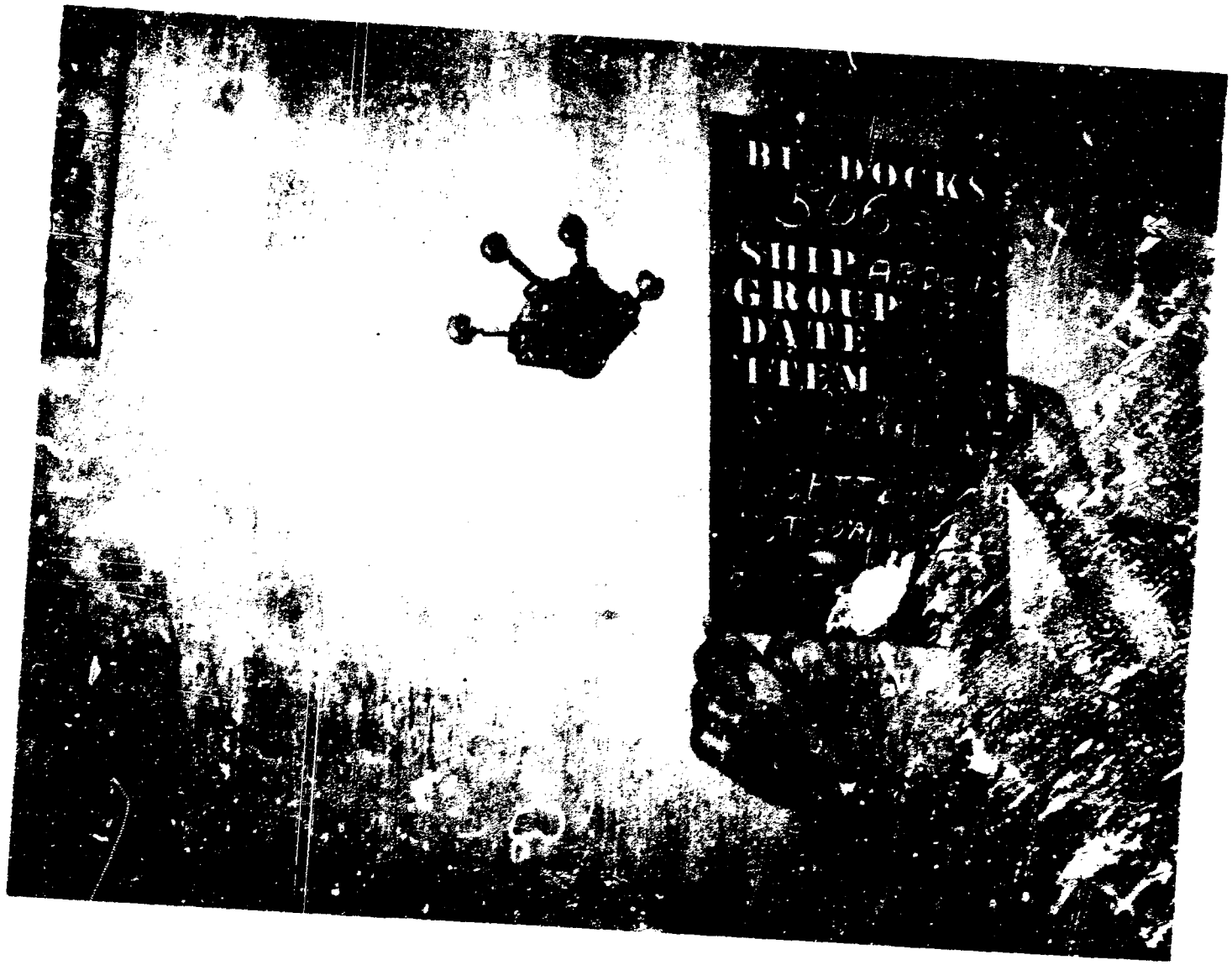
Interior View of Damage to Deck House Amidship



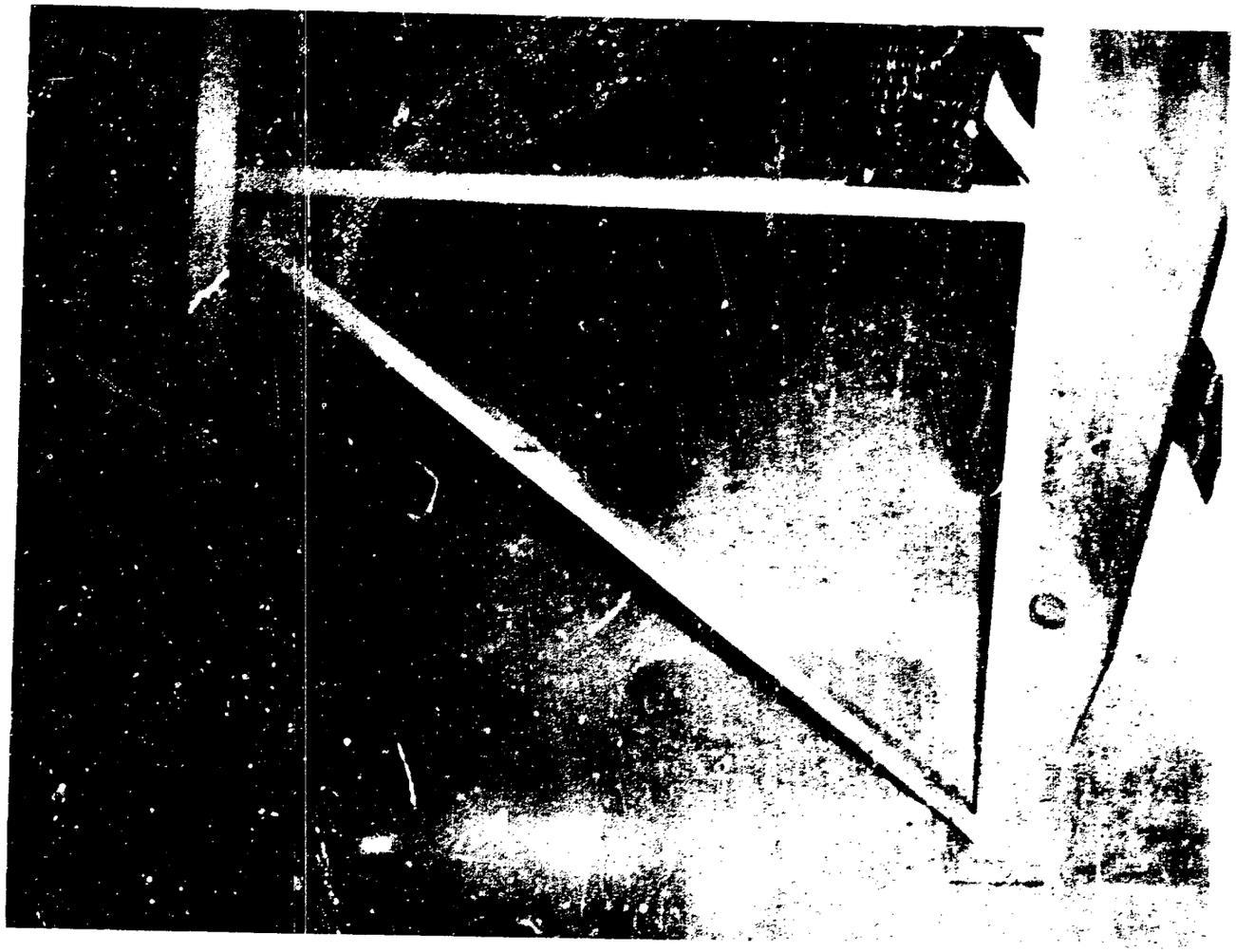
Interior View of Damage to Deck House Amidship

BEFORE ABLE

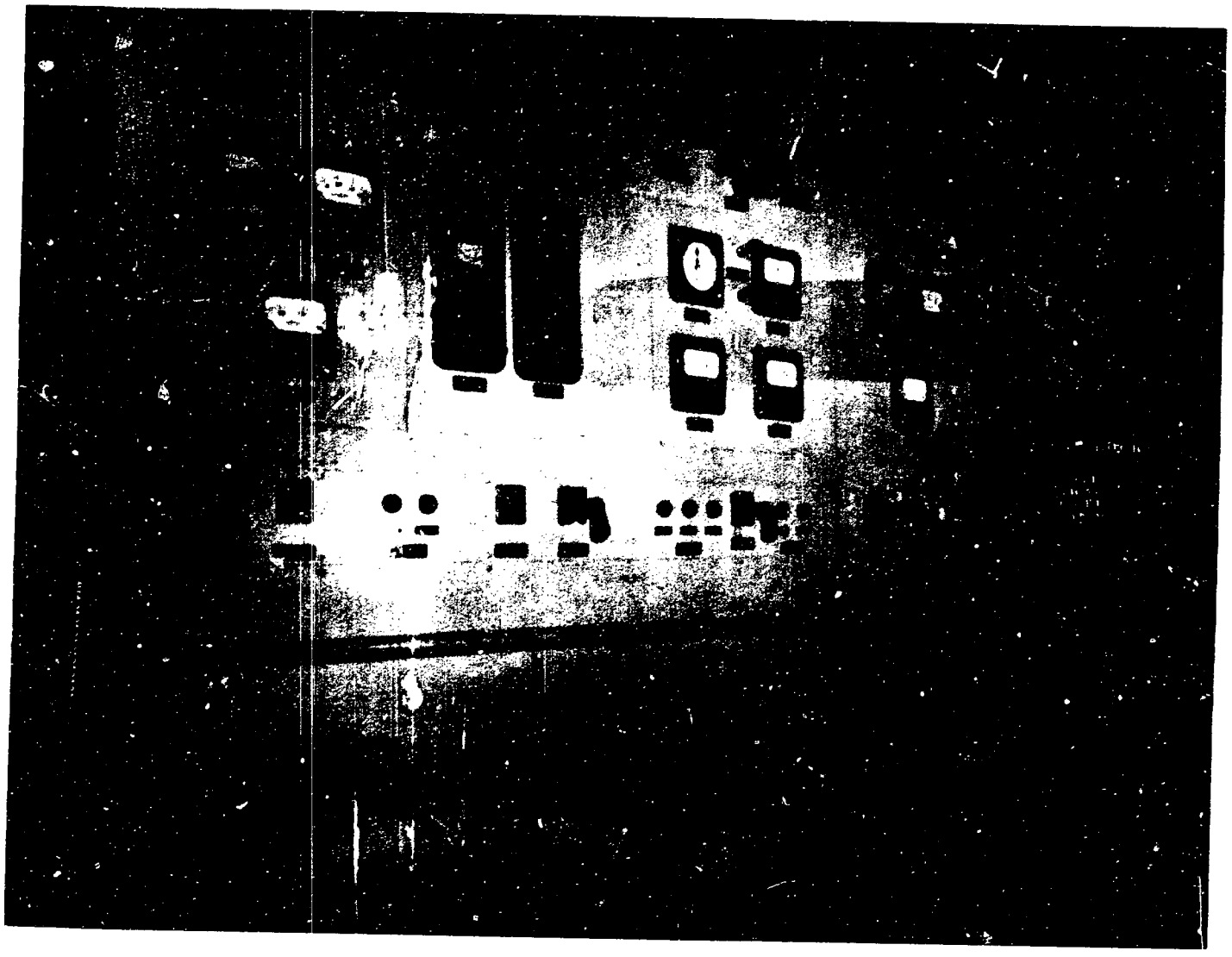
ARDC-13



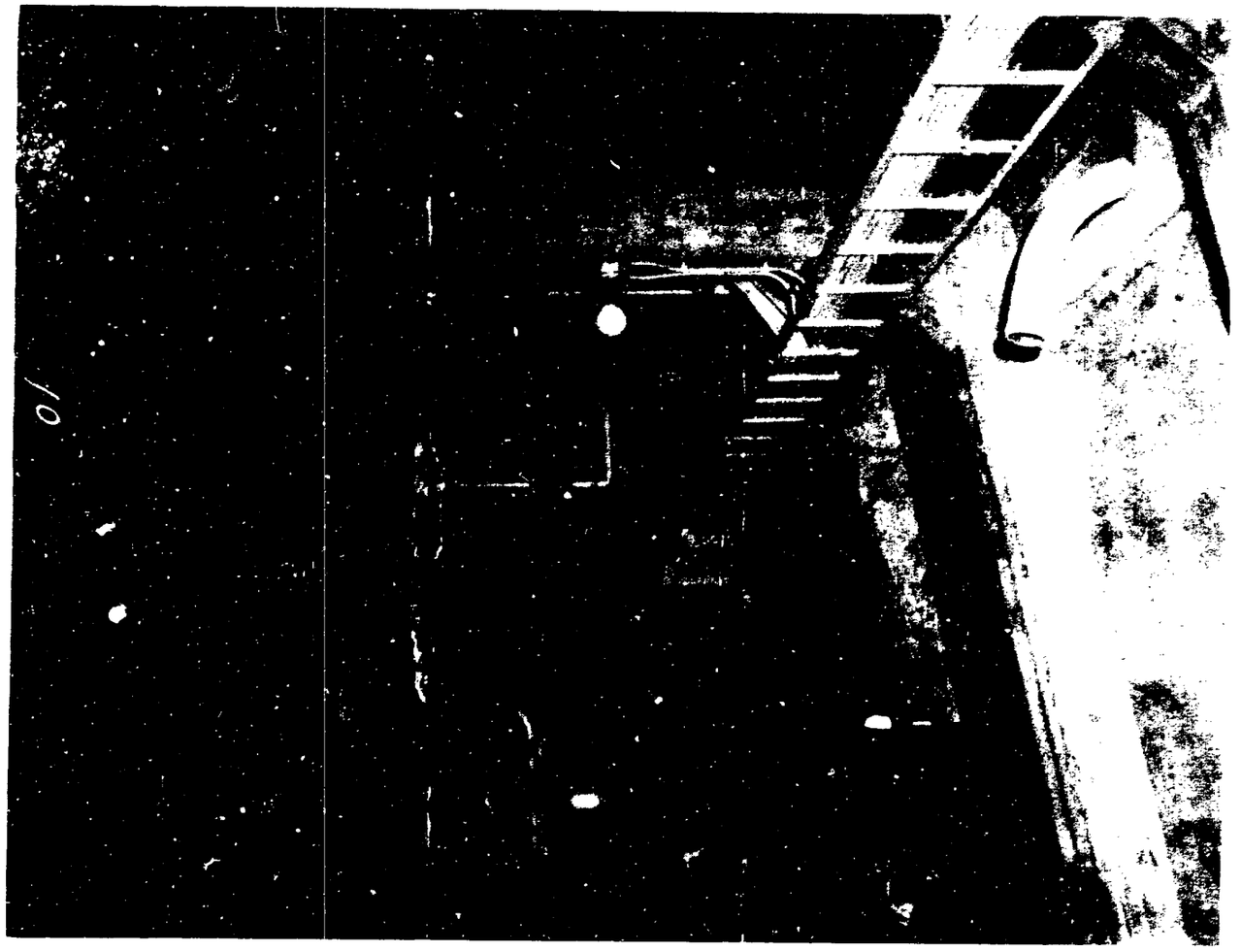
Typical Strain Gage Rosette - Outboard Wall Port - Wing Wall Inside Amidship



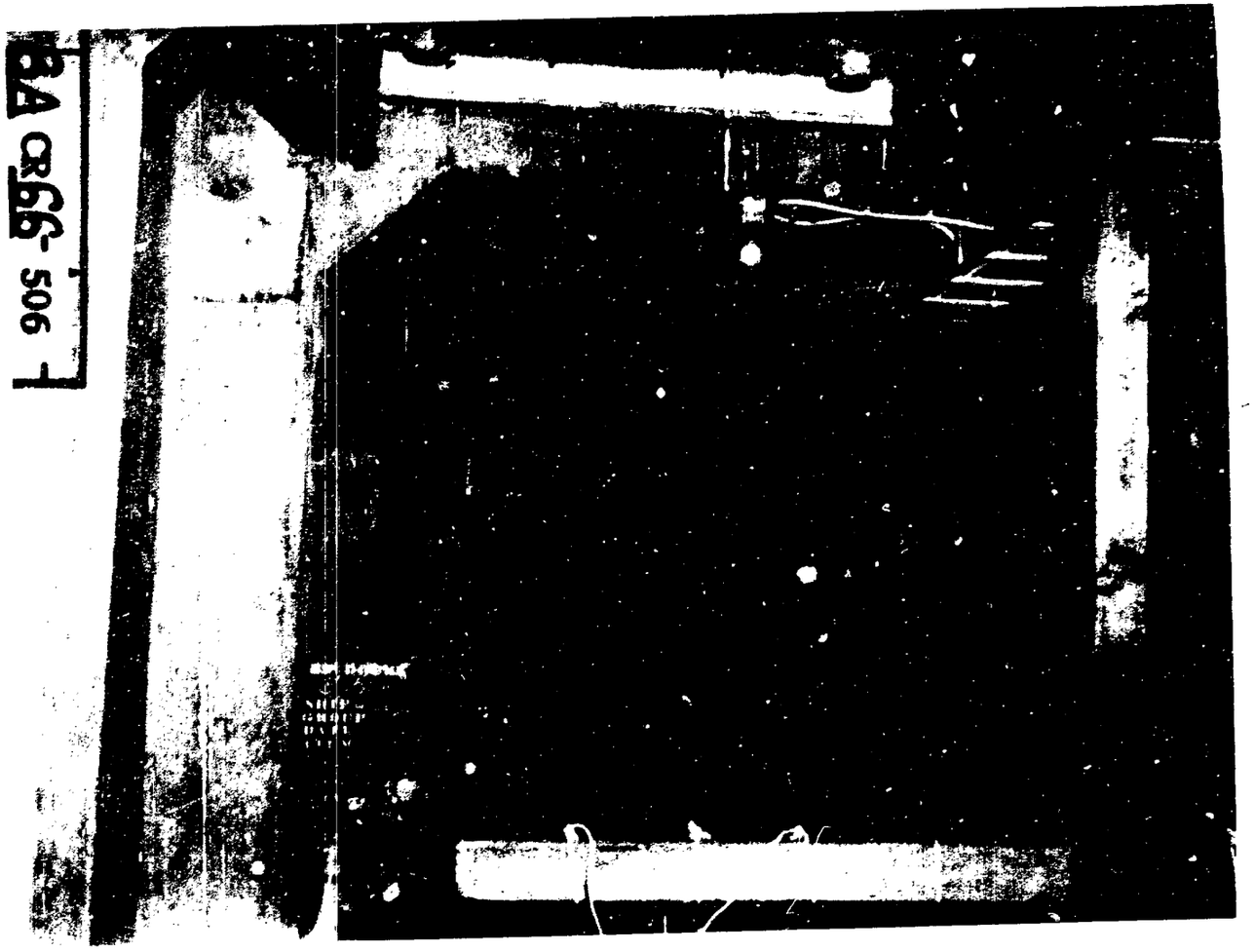
Scratch Gage Tower Base "C" Deck



Control Panel "C" Deck



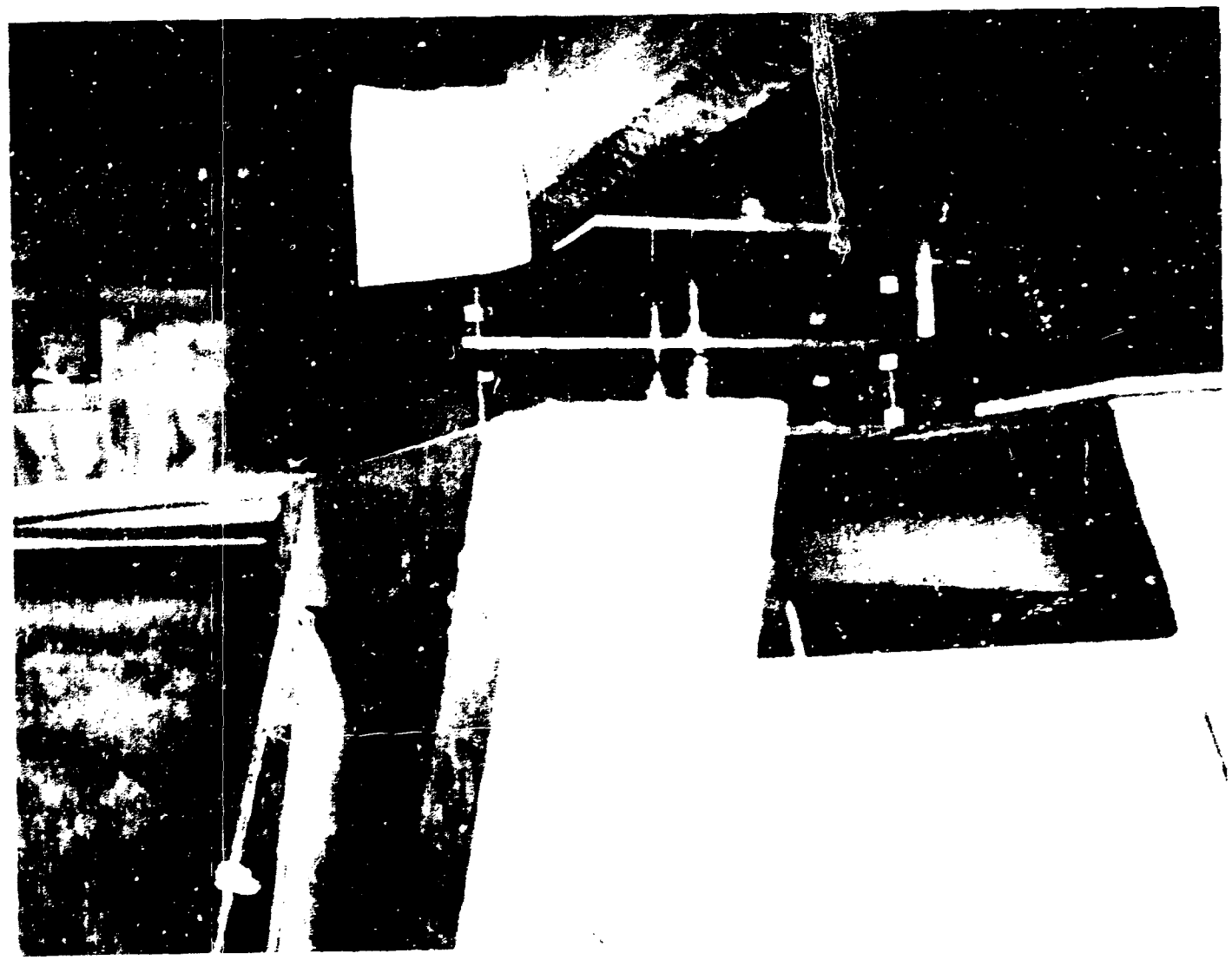
Typical Frame Construction - Interior "B" Deck - Starboard Wing Wall



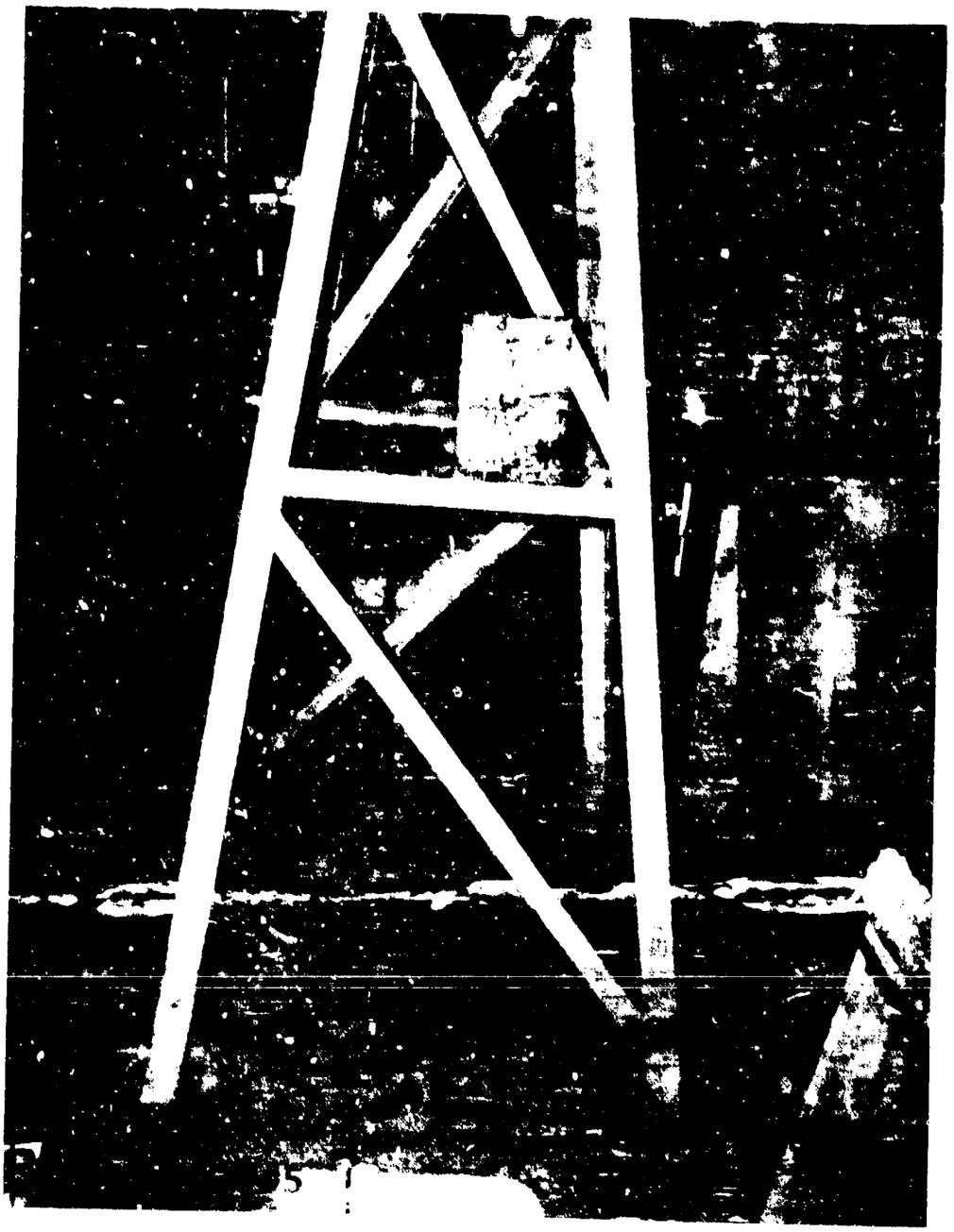
Typical Frame Construction - Interior "C" Deck - Starboard Wing Wall

Catwalk, Amidship, Facing Aft

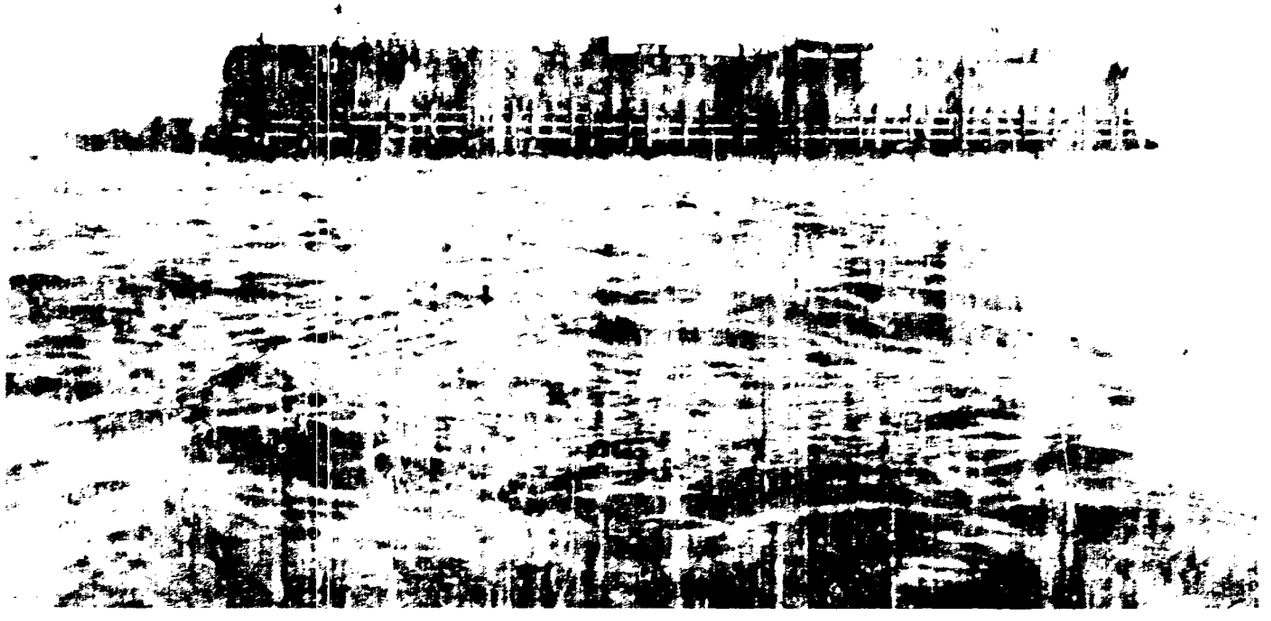
General View Dock Floor Facing Forward From Catwalk



Plunger Type Scratch Gage (Unset)



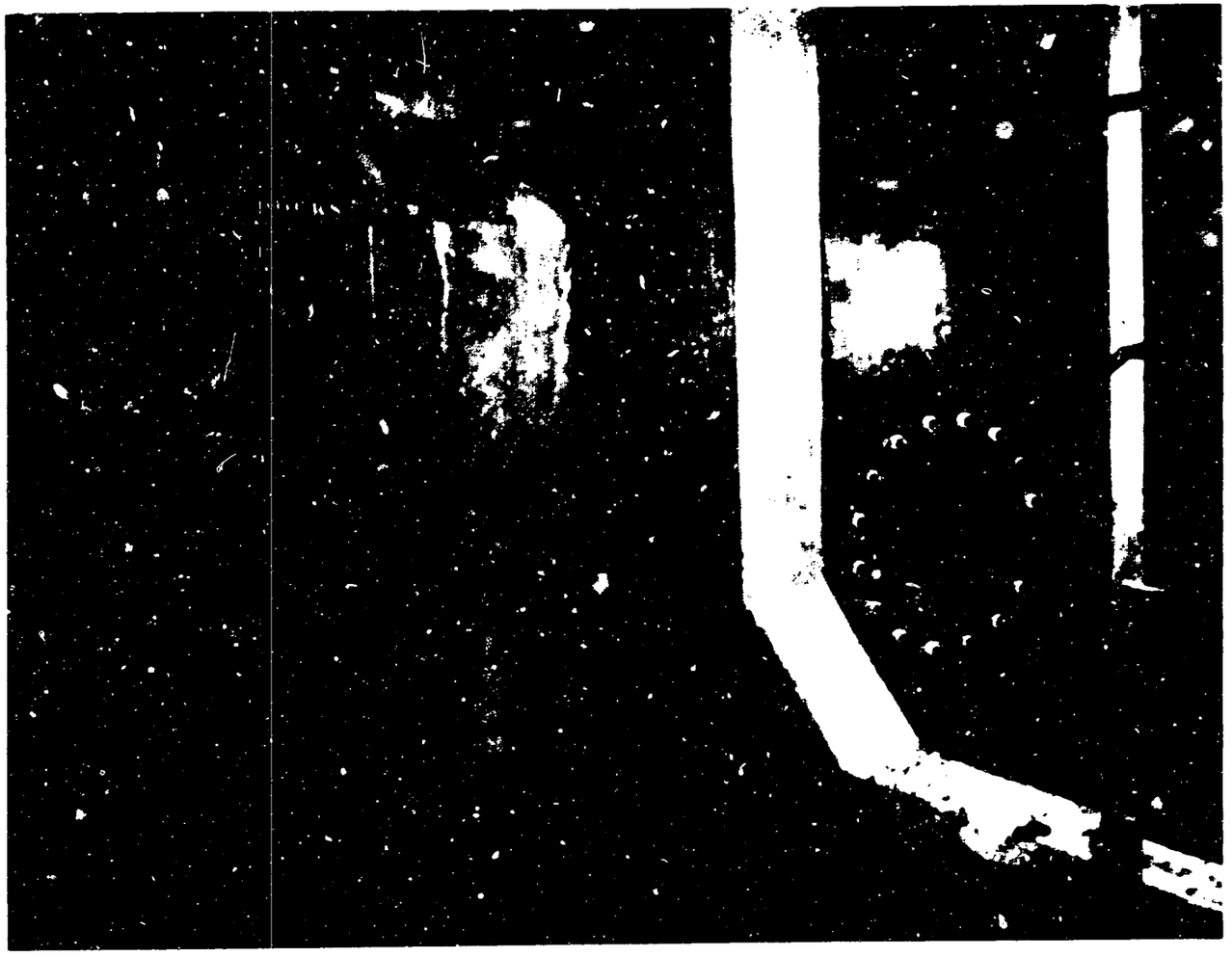
Stretch Gage Tower "B" Deck



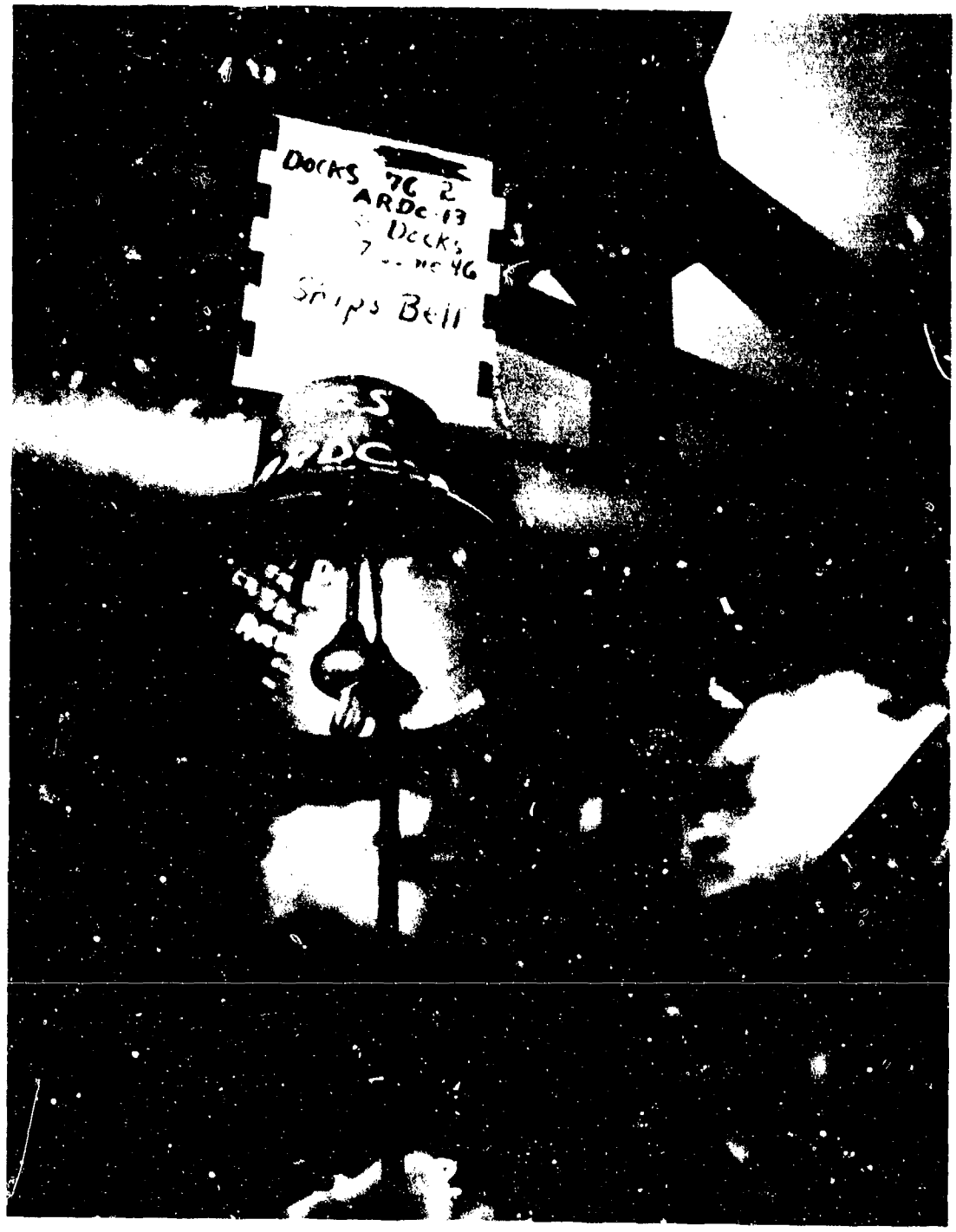
Port Beam - Exterior

Port Bow - Exterior

Anchor and Chain Fittings - Port Bow

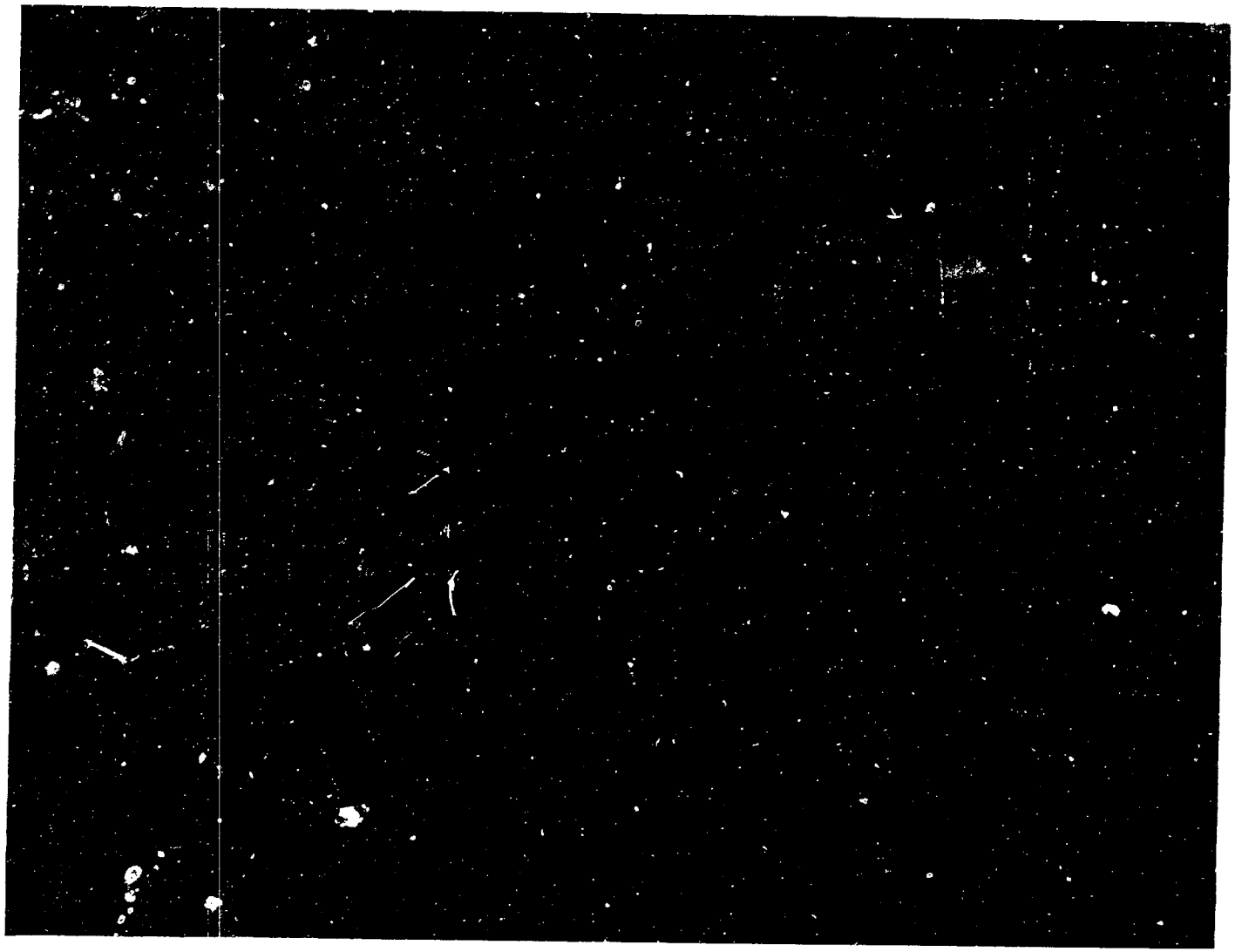


Flanged Fill and Discharge Value



Ships Bell, Mounted on Blast Gage Tower

Army Q.M.C. - Water Tank on Deck Floor



Overall View, Dock Floor Facing Aft

Forward Face, Port Wing Wall

Forward Face, Starboard Wing Wall

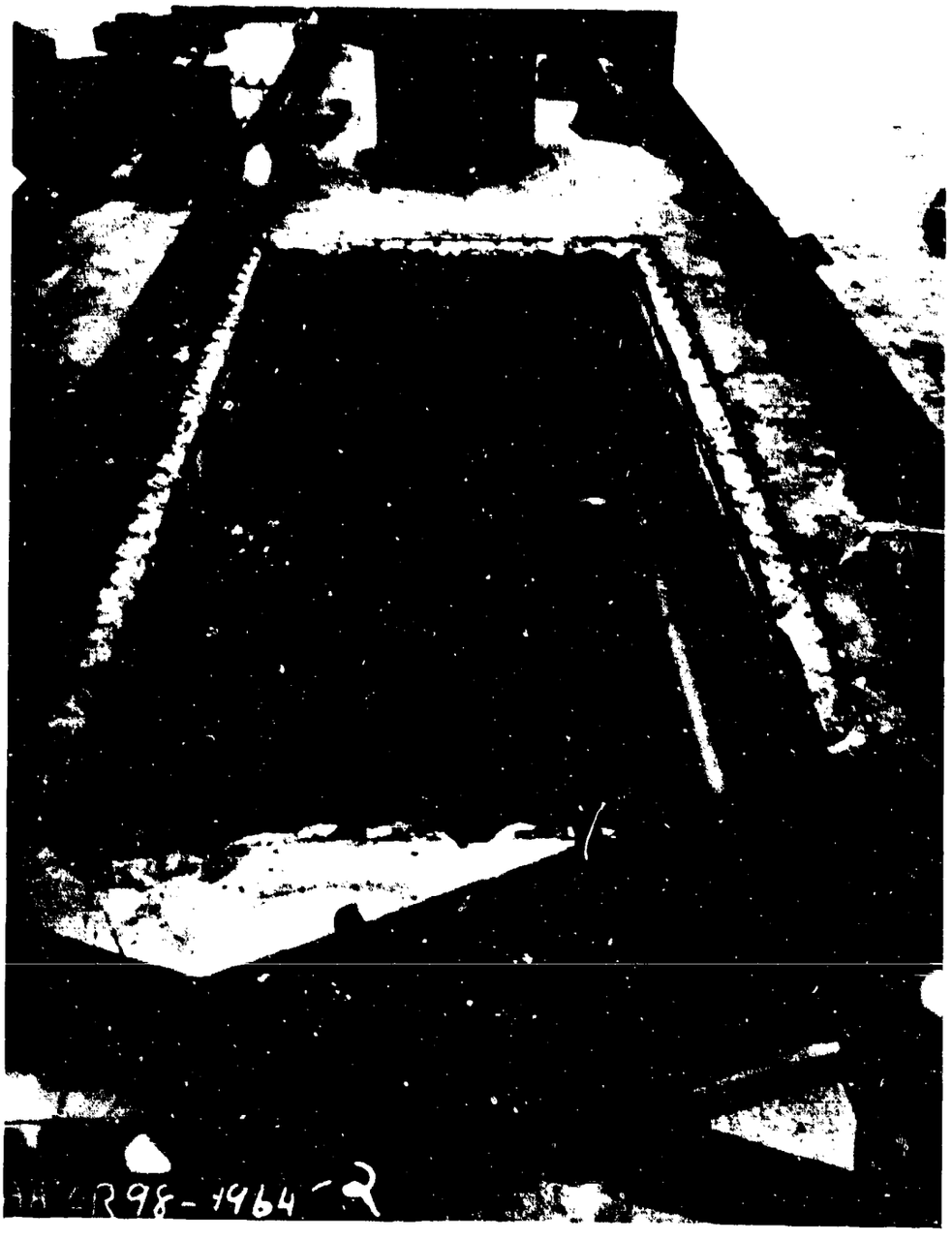
5162

AFTER ABLE

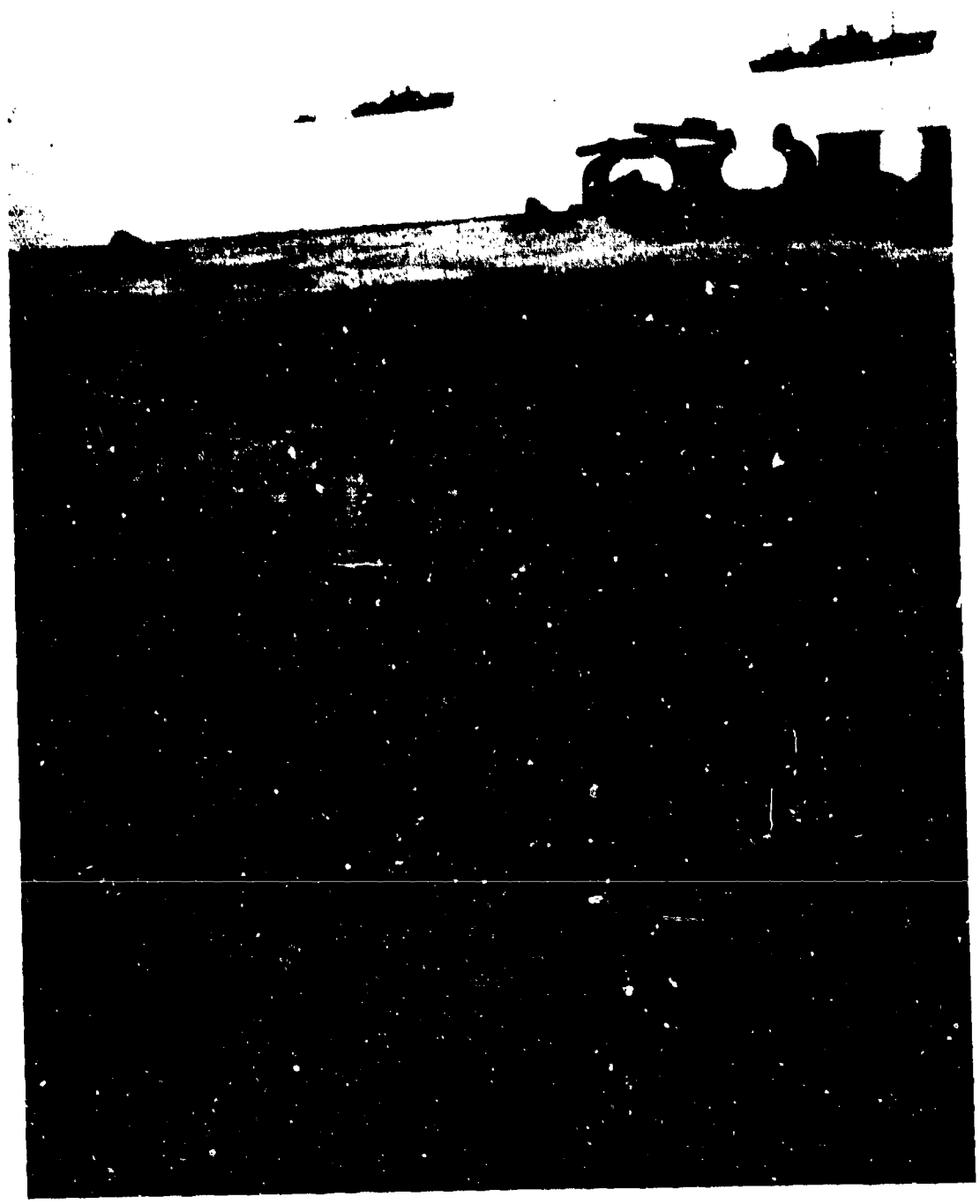
ARDC-13

5162

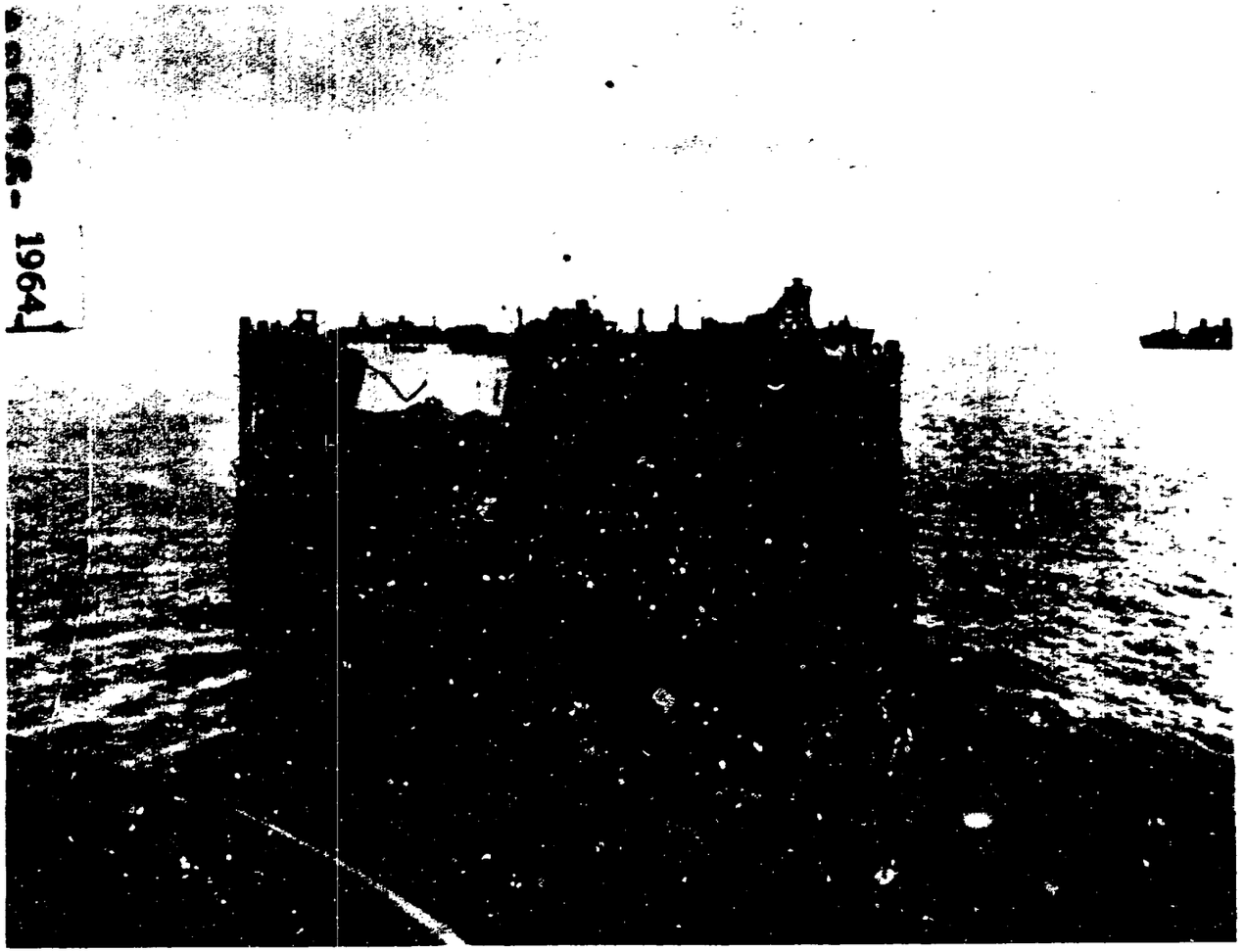
Crack - Port Side, Top of Wing Wall



Hatch Opening - Port Top Deck, Hatch Cover Gone

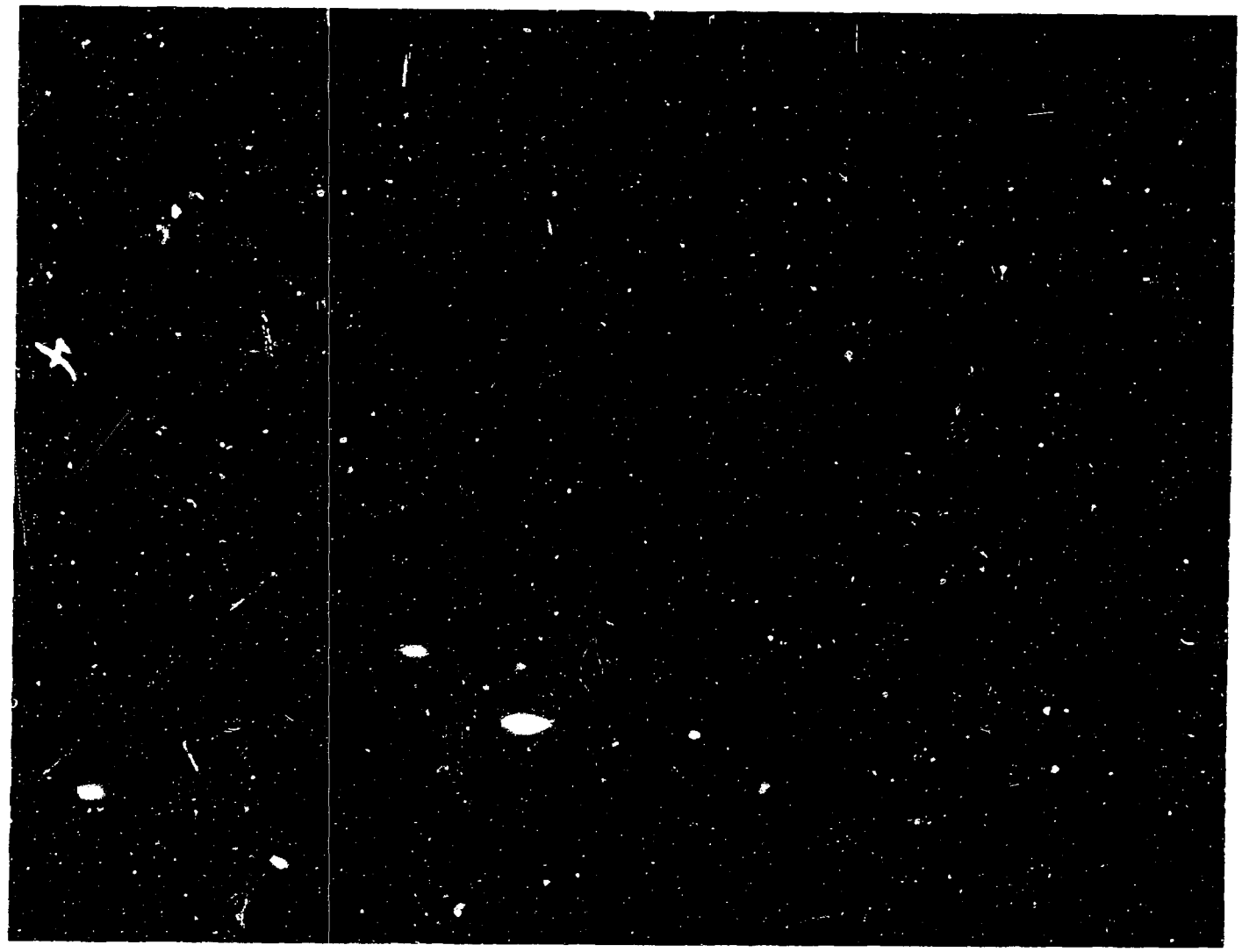


Hatch Opening on Stern Showing Bent Clips



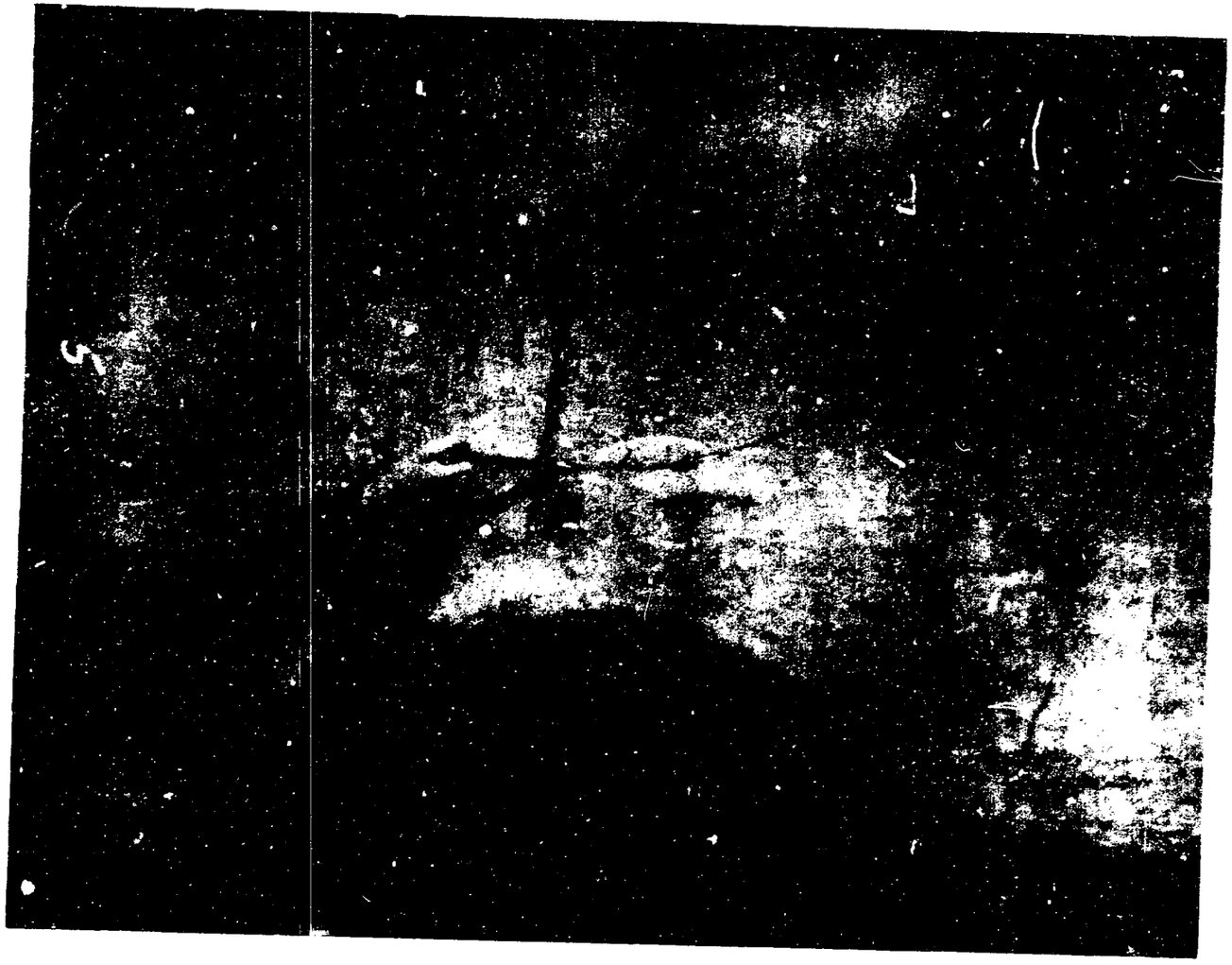
General View - Bow

Port Bow

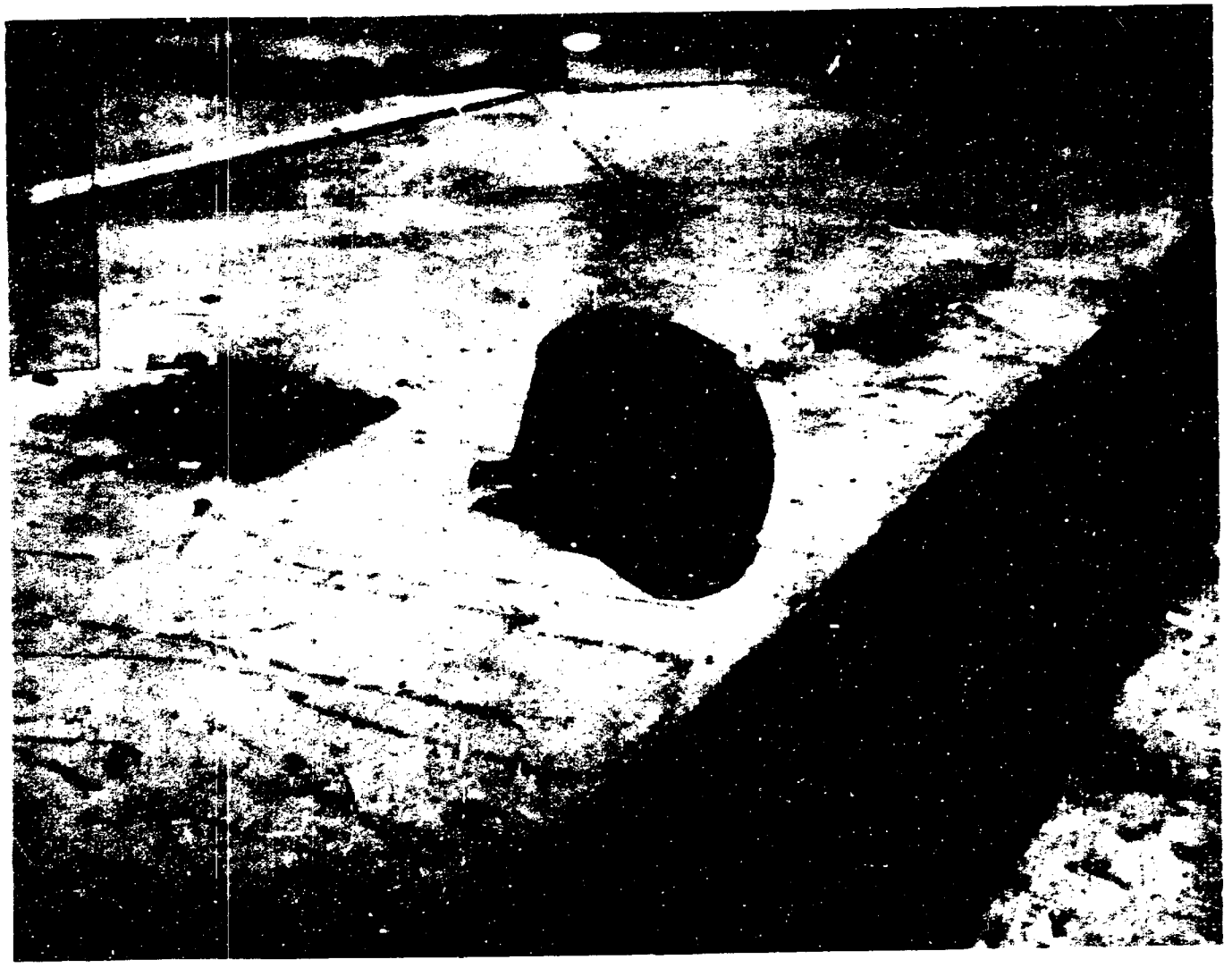


Torpedo Spoon, Stern ARDC - 13

5162



Crack - Starboard Wing Wall, Inside Aft

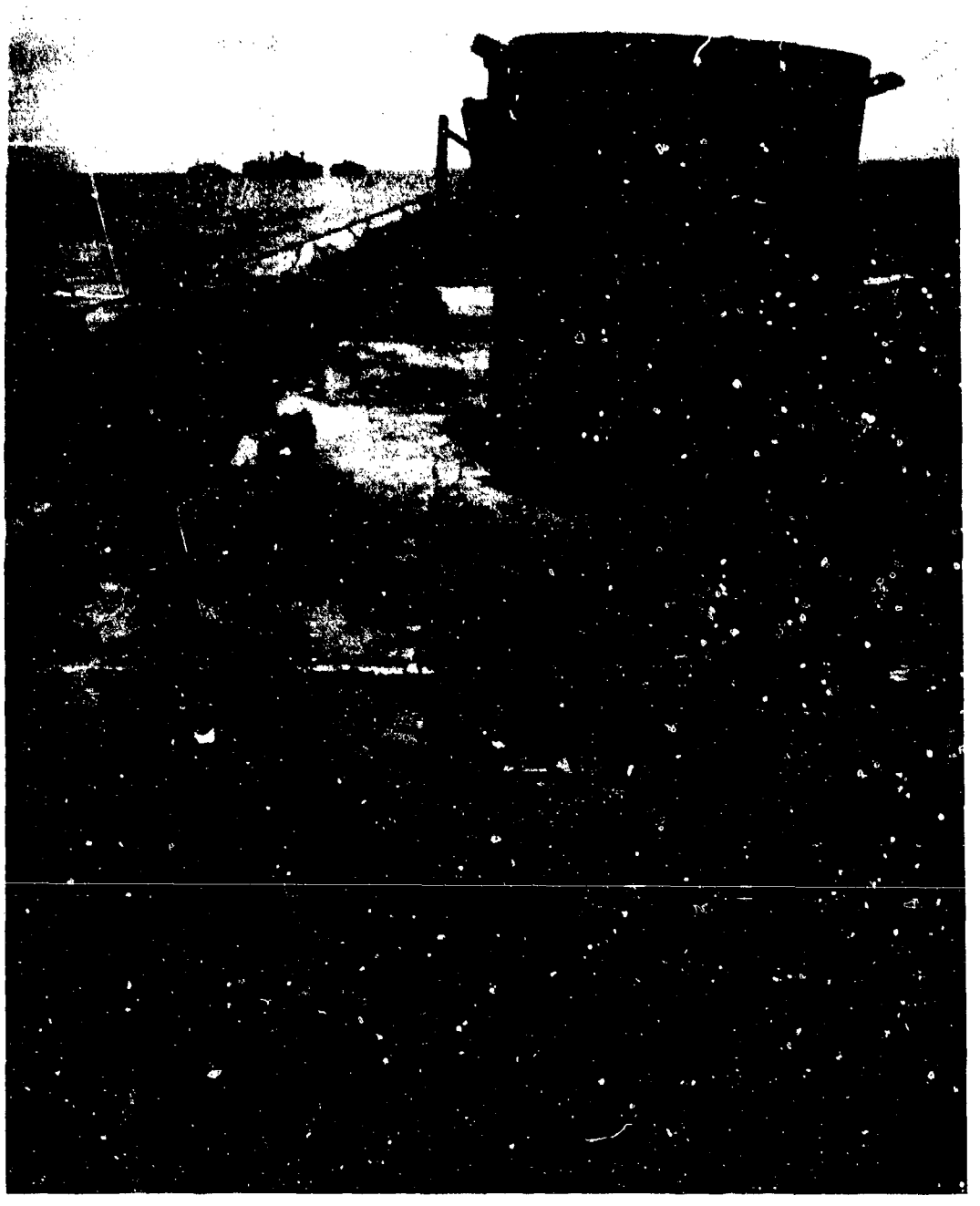


Running Light Frame (From APA)

Army Water Tank

View of Damage to Forward Face of Port Wing Wall

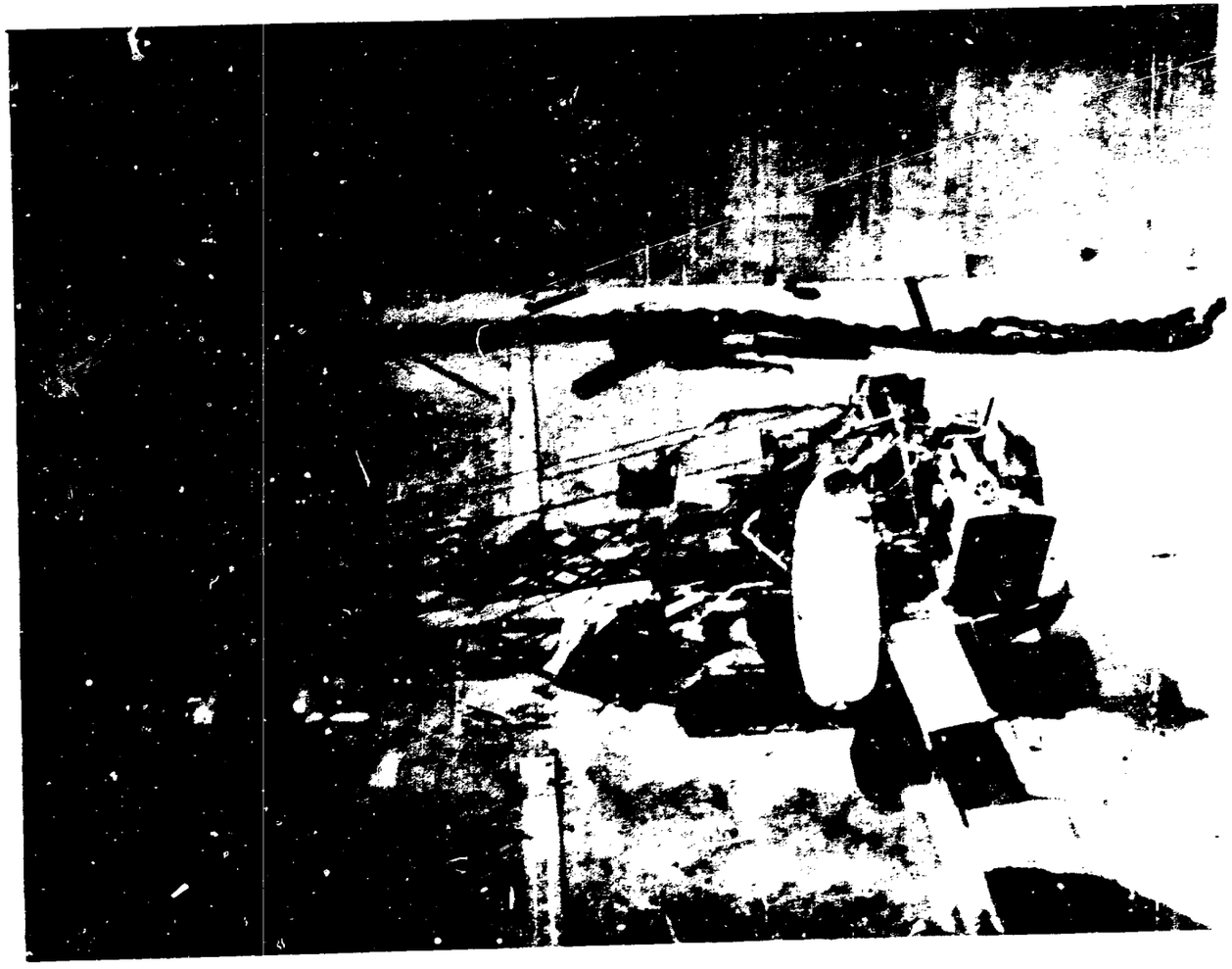
View of Damage to Forward Face of Starboard Wing Wall



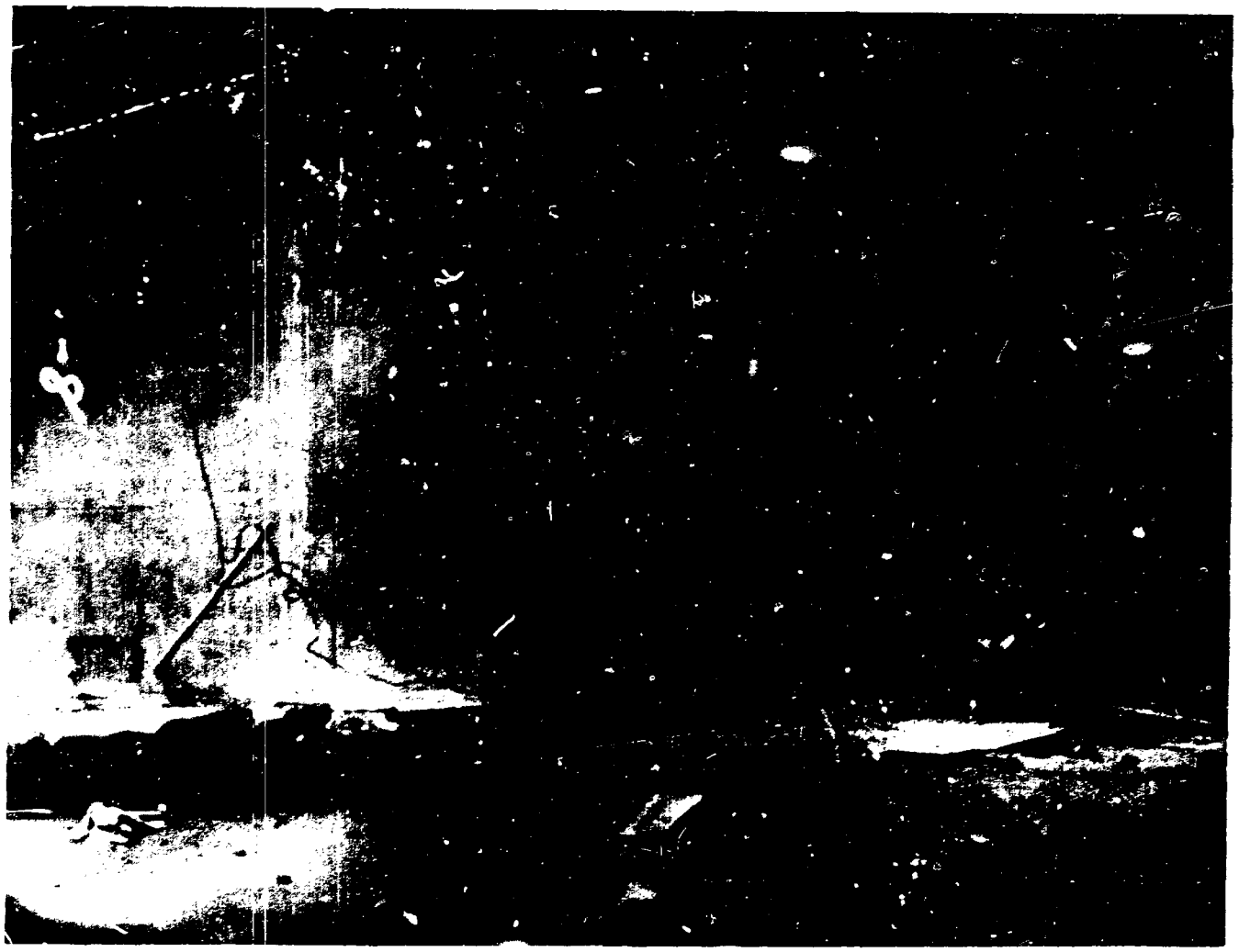
Longitudinal Crack in "A" Deck Port Wing Wall,
Frame 25 Facing Aft

Longitudinal Crack in "A" Deck Port Wing Wall,
Frame 25 Facing Forward

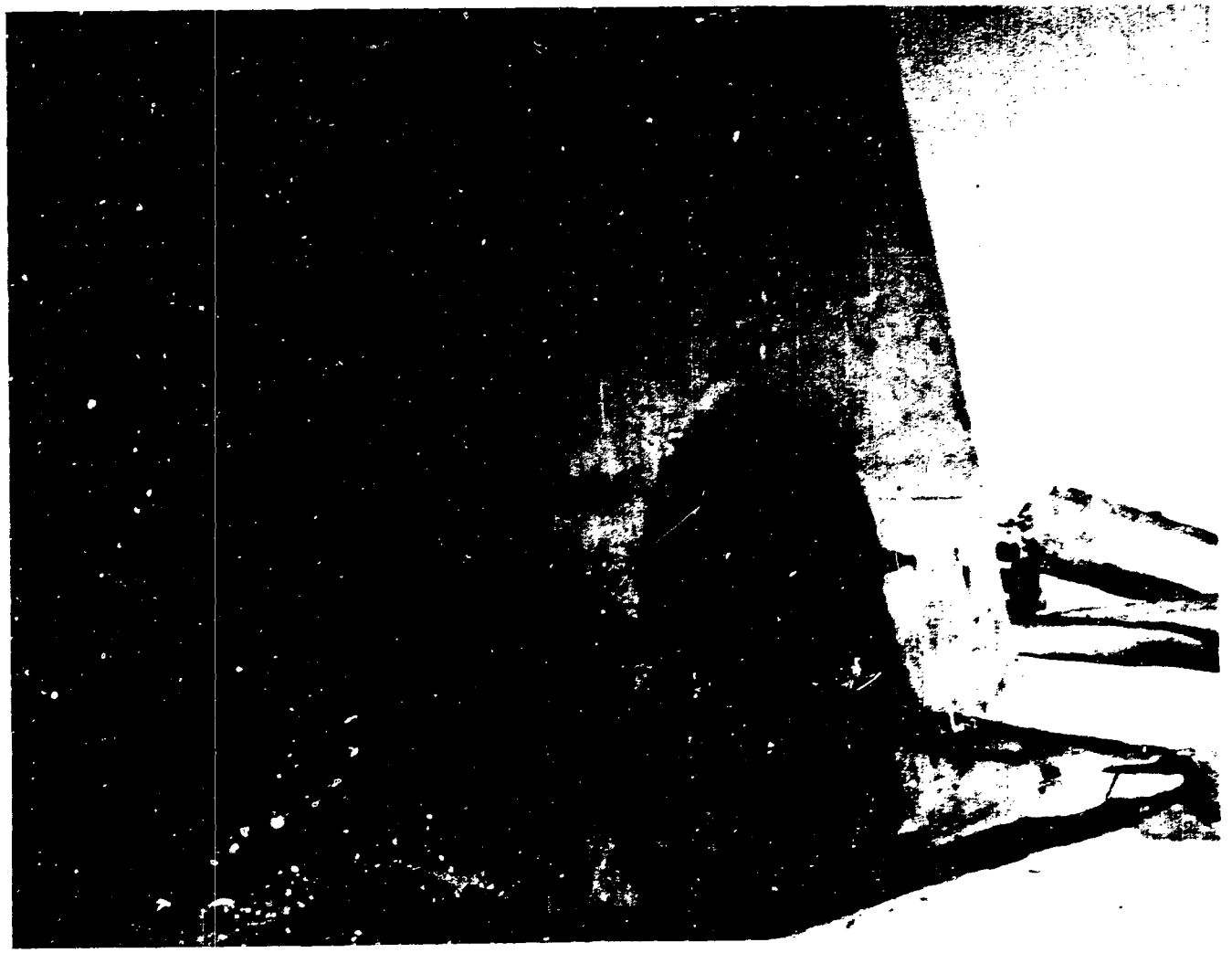
5162



View of Damage to Crane on Deck Floor from Top of Port Wing Wall

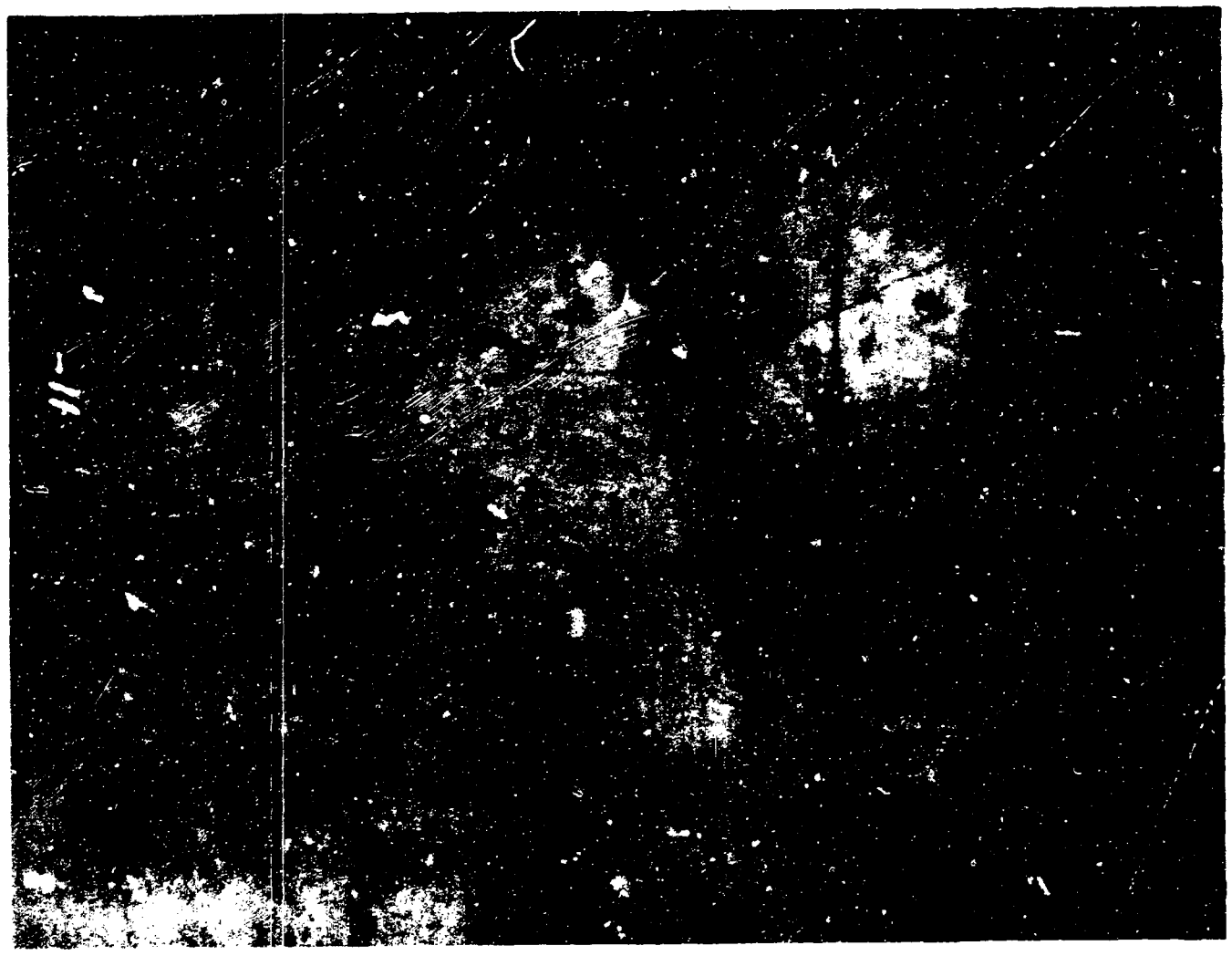


Crack - Inboard Face, Starboard Wing Wall - Amidships - 3' Above Deck Floor



Crack - After Face and Inboard Corner of Starboard Wing Wall
3' Above Dock Floor

Crack - After Face of Starboard Wing Wall



Spalling - Inboard Face Starboard Wing Wall - Frame 40 - 3' Above Floor

Crack - "A" Deck Starboard Wing Wall - Frame 30 Facing Aft

Crack - Spalling - Around Ventilator at Frame 28 - "A" Deck Starboard Wing Wall

Spalling Around Ventilator - "A" Deck - Starboard Wing Wall at Frame 38

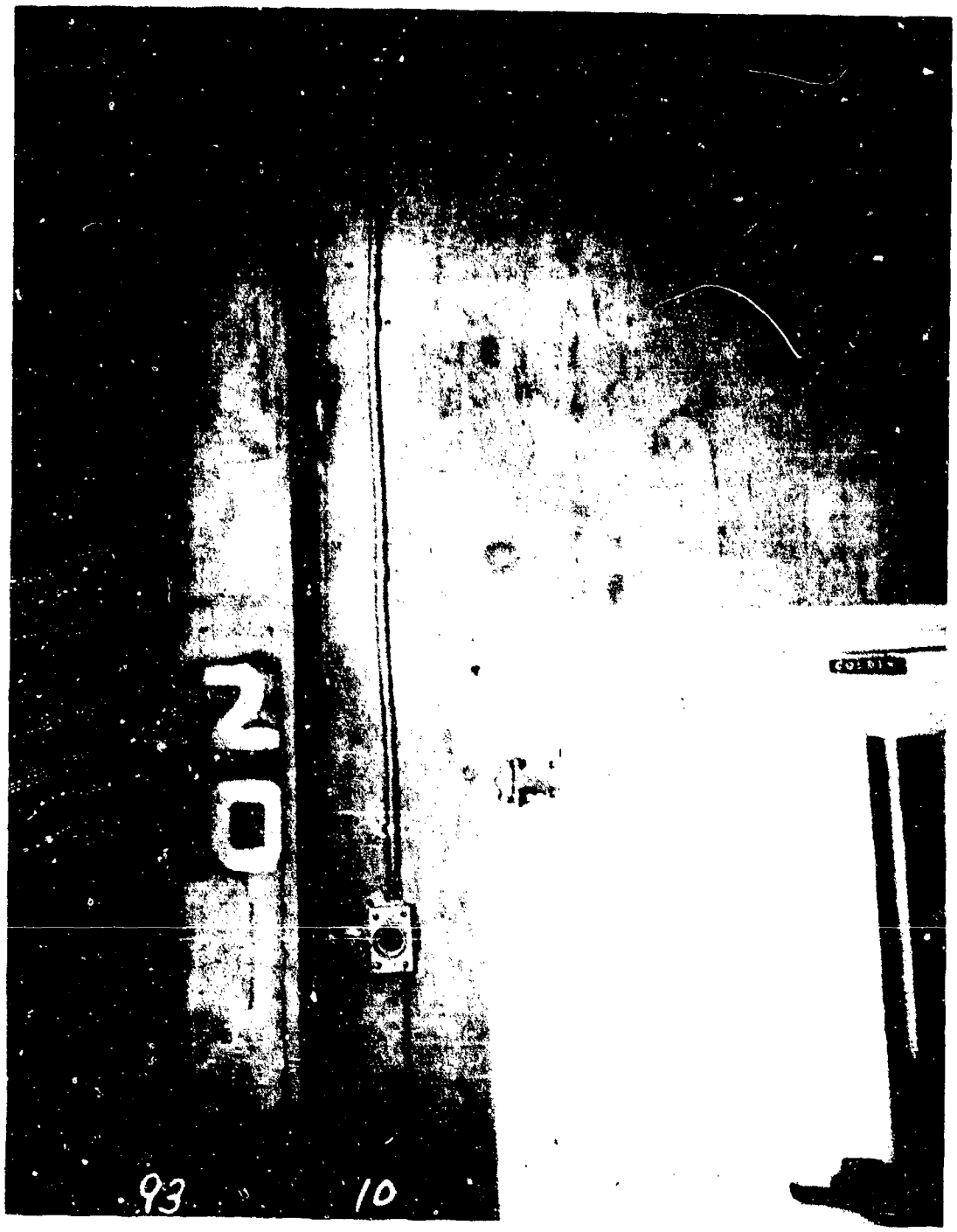
Crack - Inboard Face - Port Wing Wall - Frame 20 - 35 - 10' Above Floor

Crack - Inboard Face - Port Wing Wall - Frame 20 - 42 - 2' From Top

5162

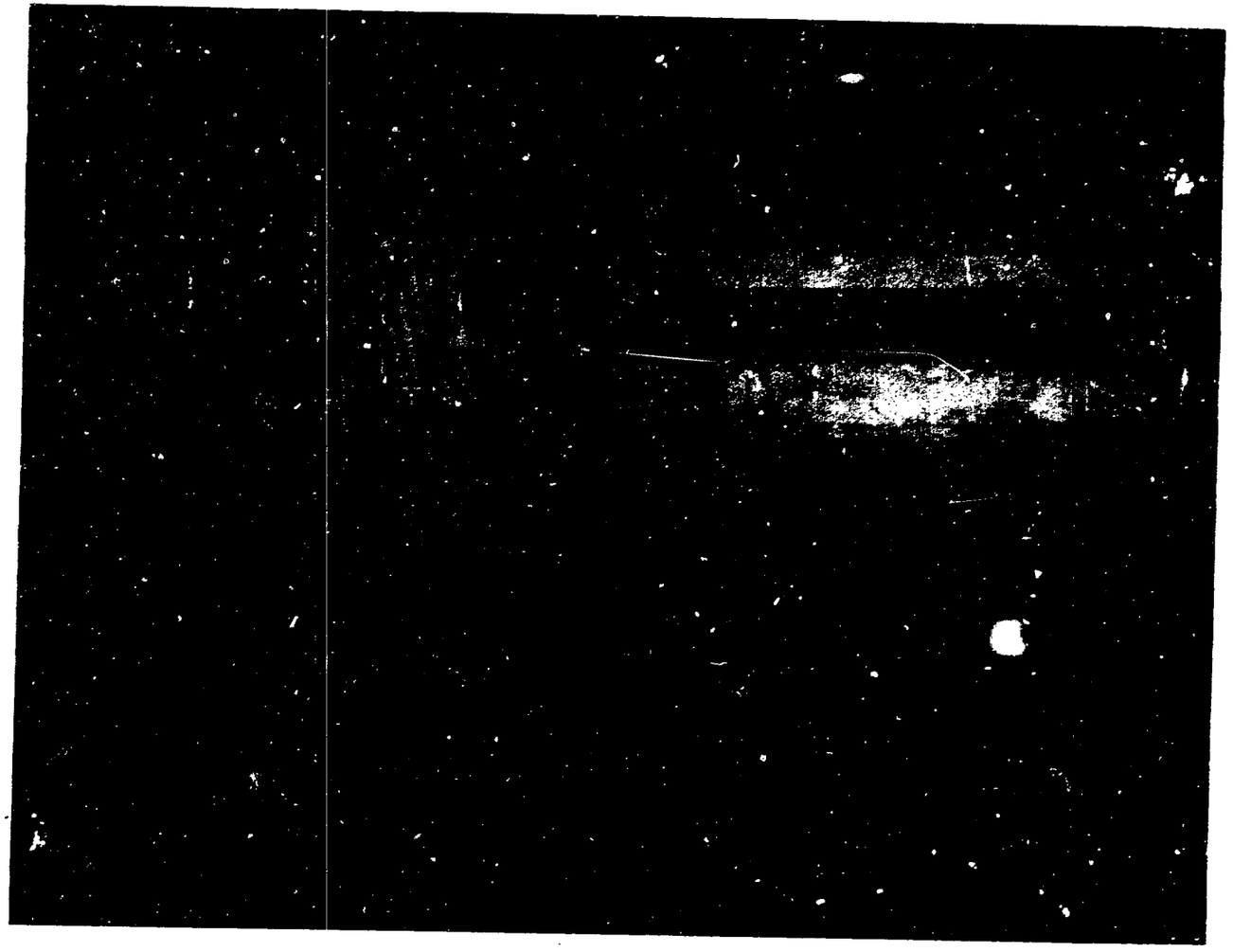
Crack - "B" Deck Port Wing Wall - Frame 18

5162



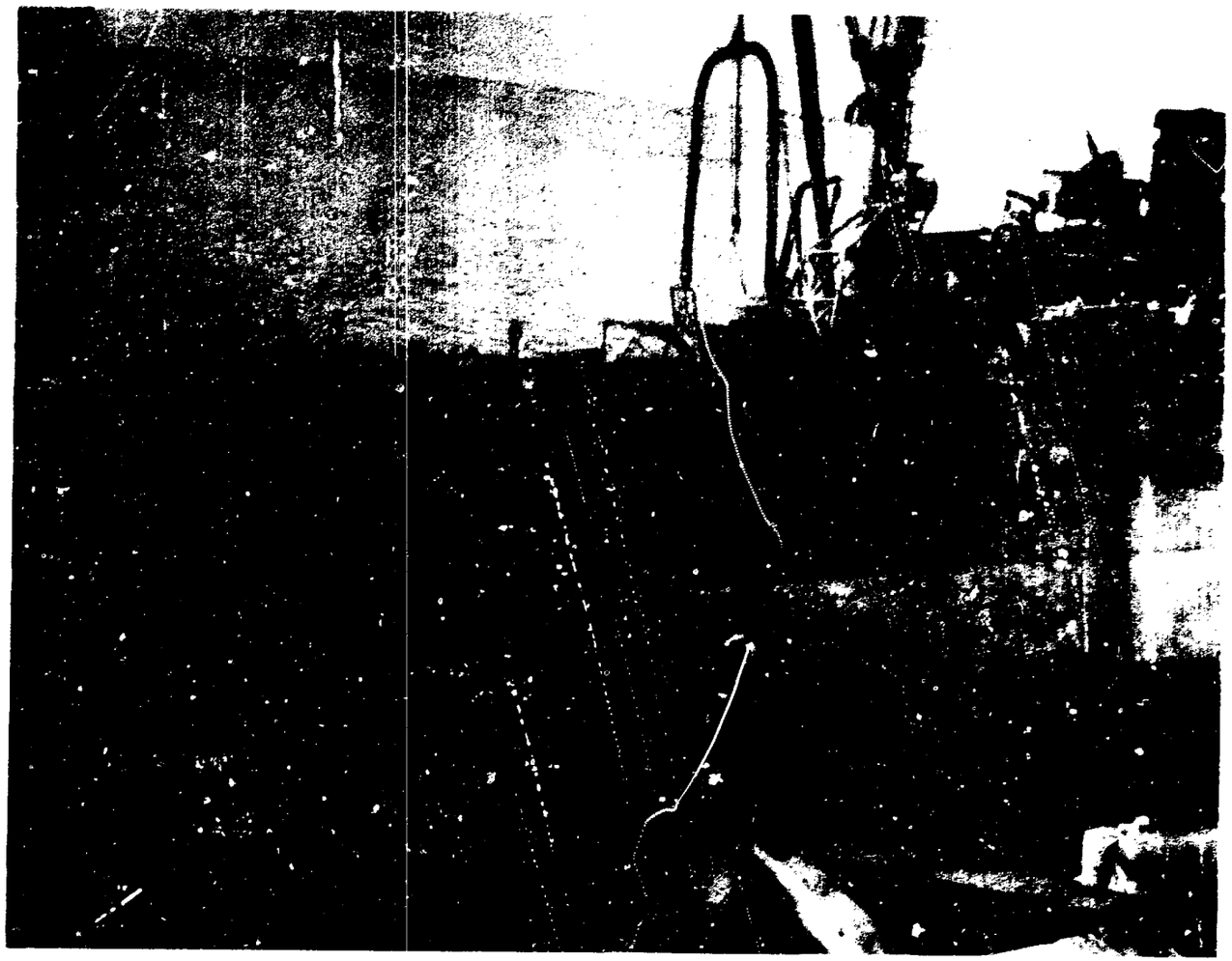
Crack - "B" Level - Port Wing Wall - Frame 20 -
Outboard Wall - Inside Face

5162



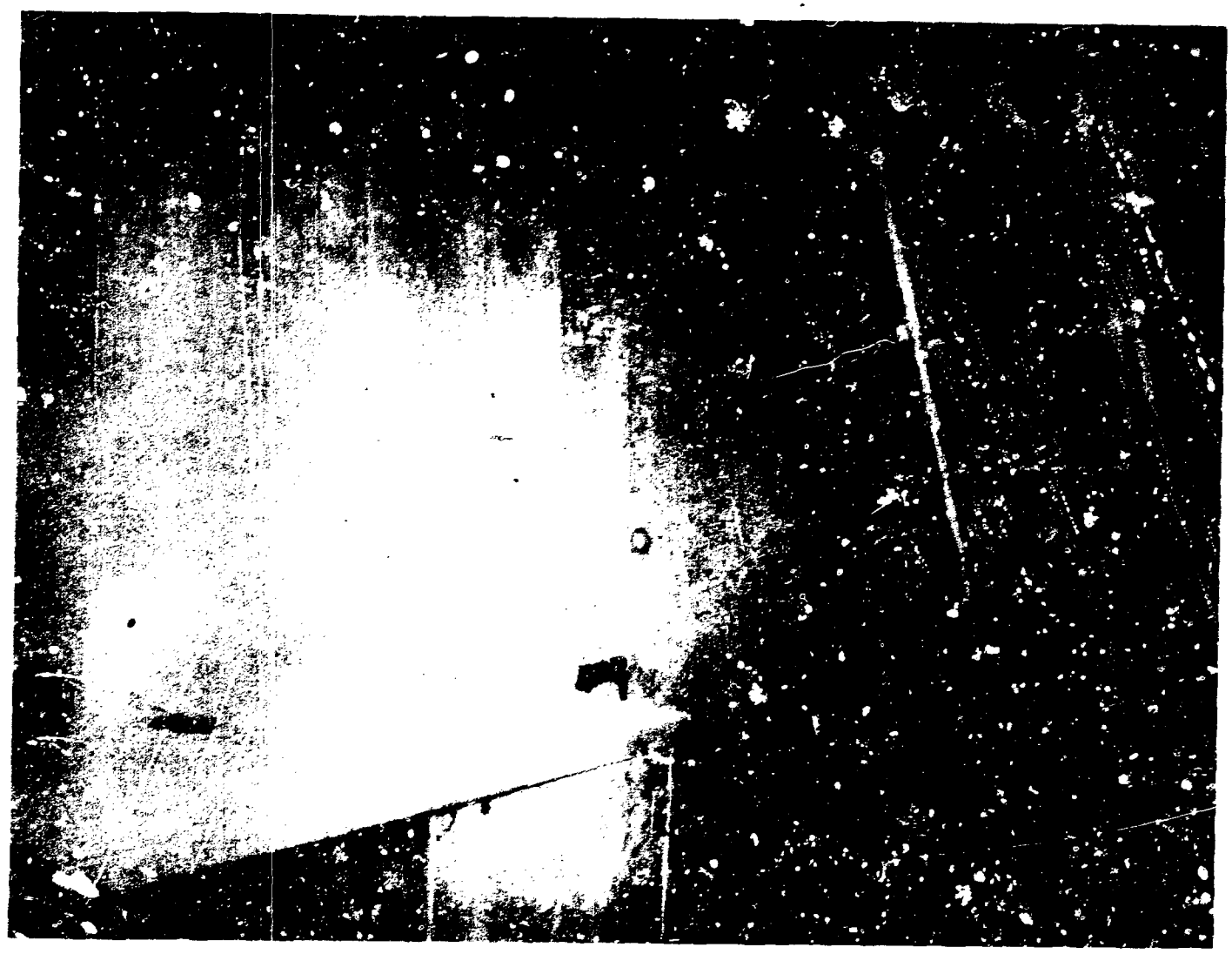
Crack - "B" Level - Port Wing Wall - Frame 26 -
Top Inside Face of Outboard Wall

Crack - "B" Level - Port Wing Wall - Frame 24 - Top



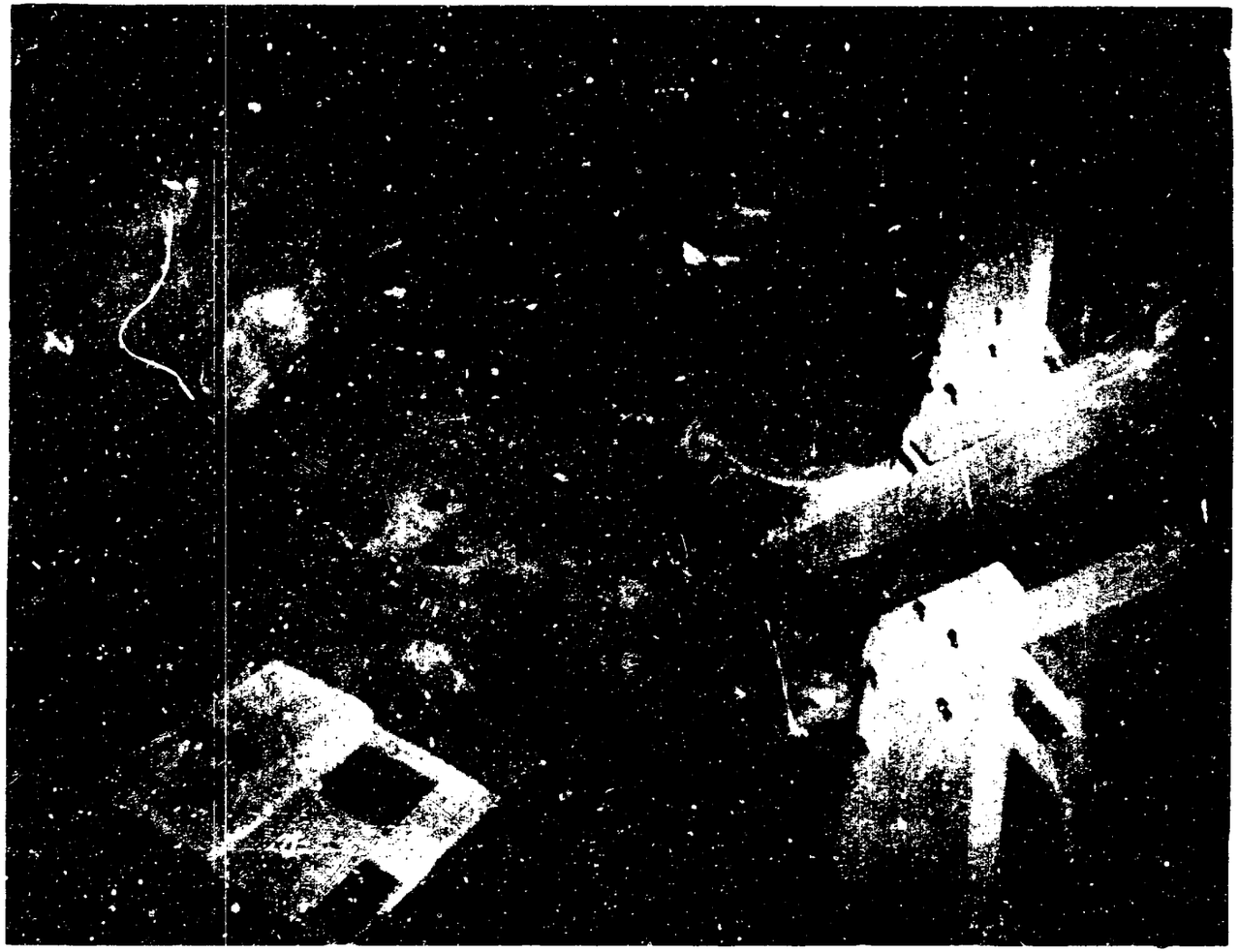
View of Preparations for Pumping out Dock

5162



Longitudinal Crack Inside Face - Outboard Wall - Frame 24 - Port

5162

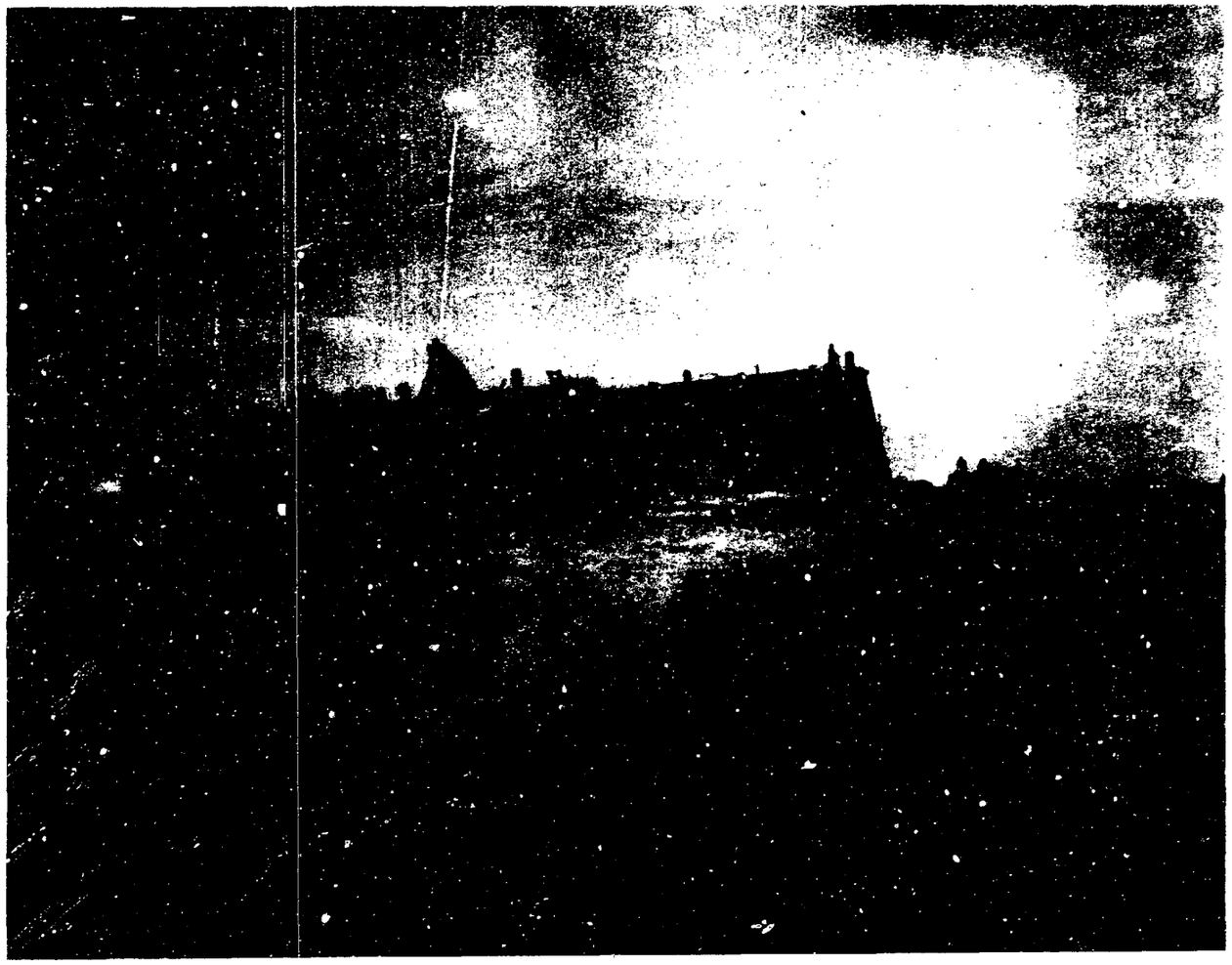


View of Mess Table Ripped Off Fastenings to "B" Deck

5162

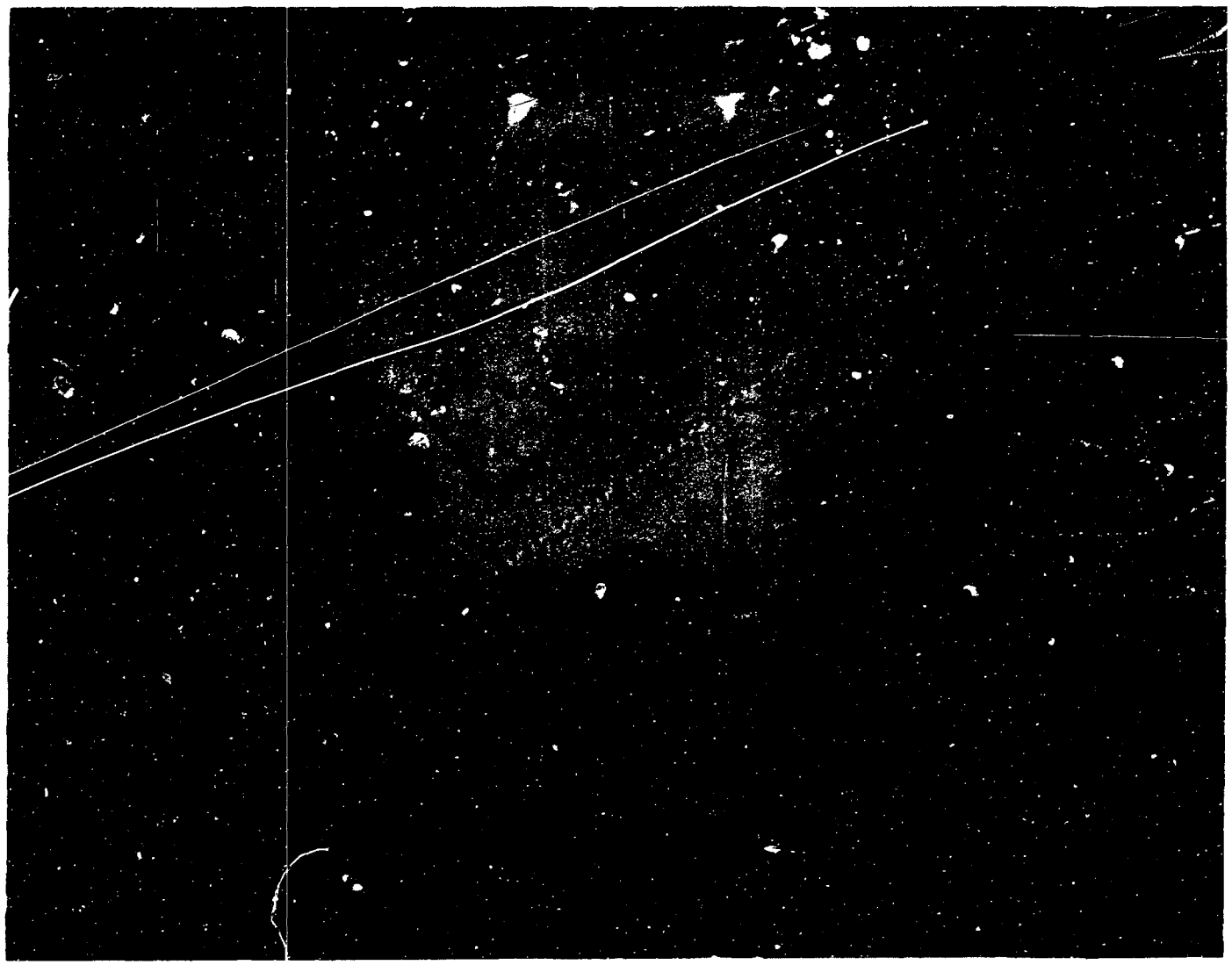
View of Damage to Sick Bay "B" Deck

Crack in Transverse Bulkhead at Frame 44, Port Wing Wall



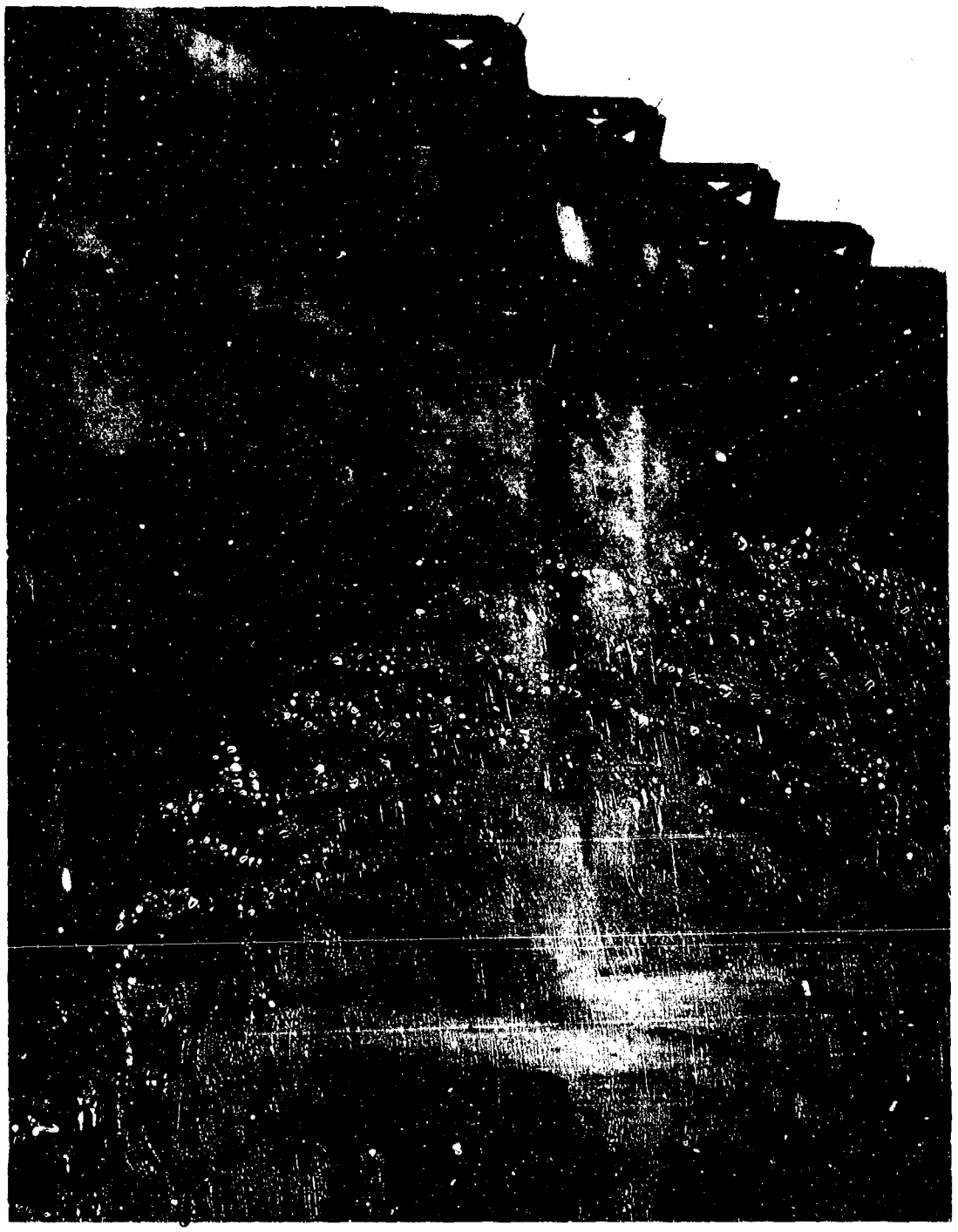
General View of Port Quarter

5162

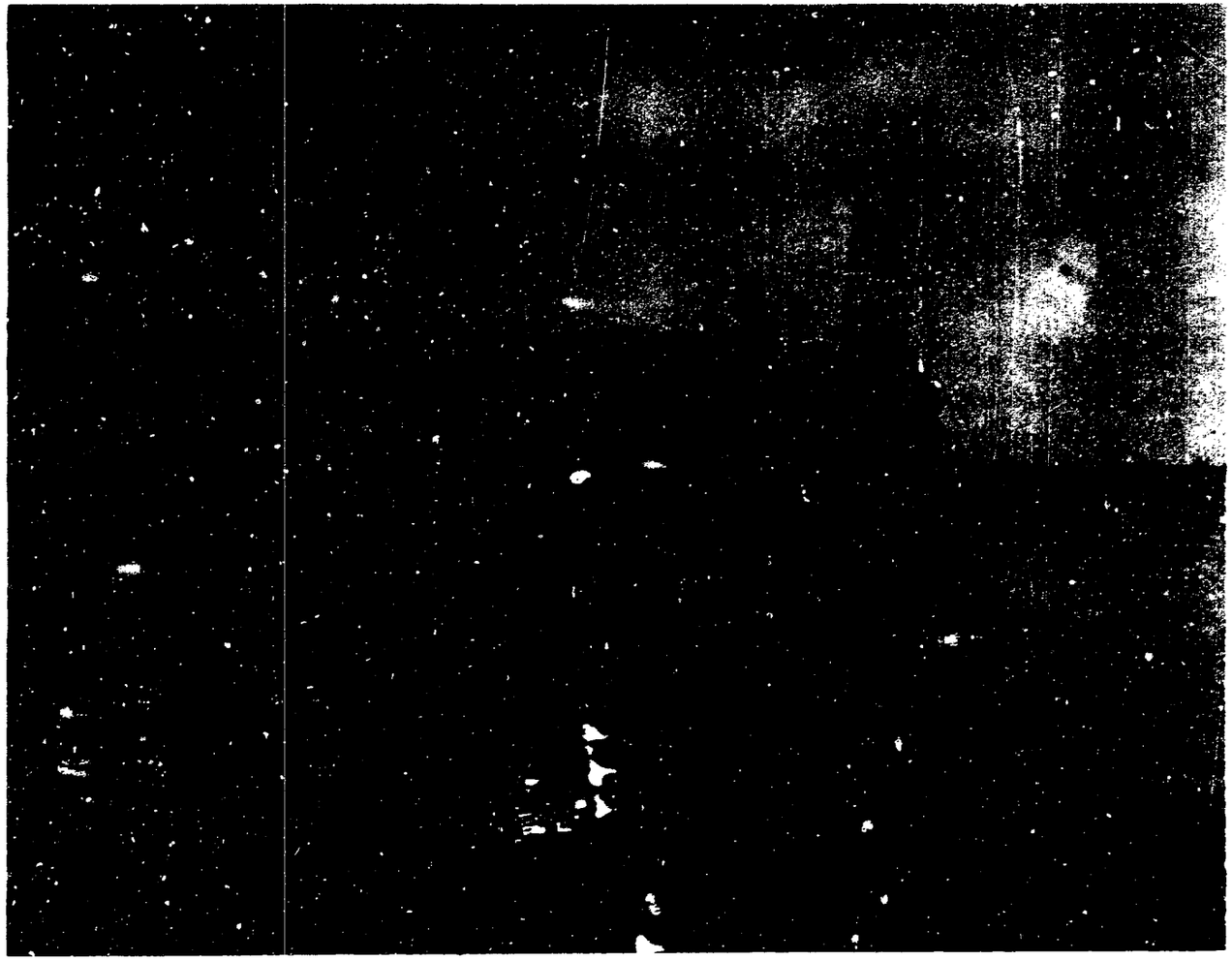


View of Damage Material on Dock Floor Facing Aft

5162



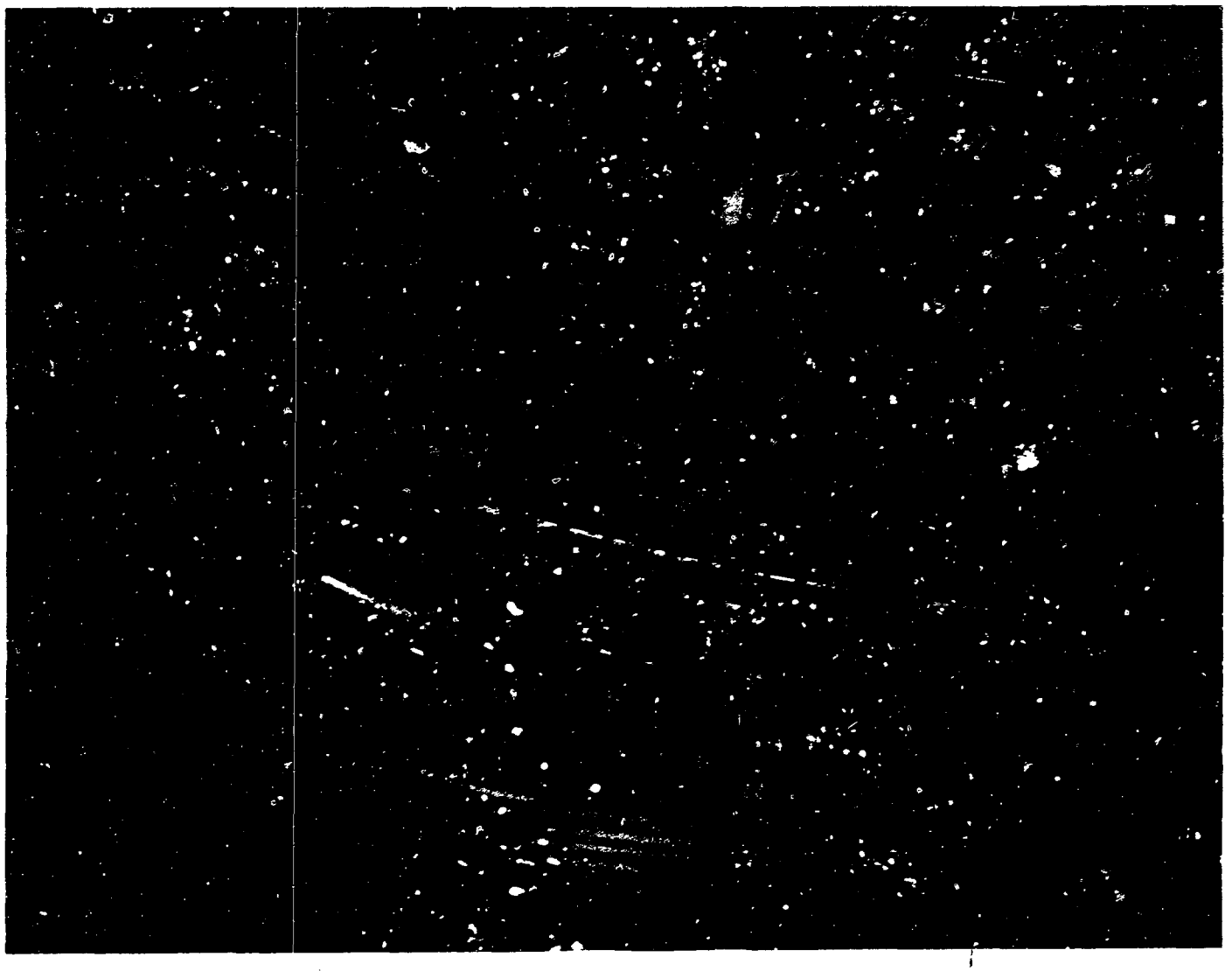
General View of Starboard Wing Wall Facing Aft



Blast Shadow Inside Face Starboard Wing Wall - Frame 49 to 56

Frame 36, Below "A" Deck Outboard Shell - Starboard Wall

Frame 36 Between "A" and "B" Deck - Frame 27 to 28 near Inboard Shell, Starboard Wall



Bottom of "A" Deck - Frame 27 to 28 Near Outboard Shell - Starboard Wall

"B" Deck Frame 25 to 26 Near Outboard Shell - Starboard Wall

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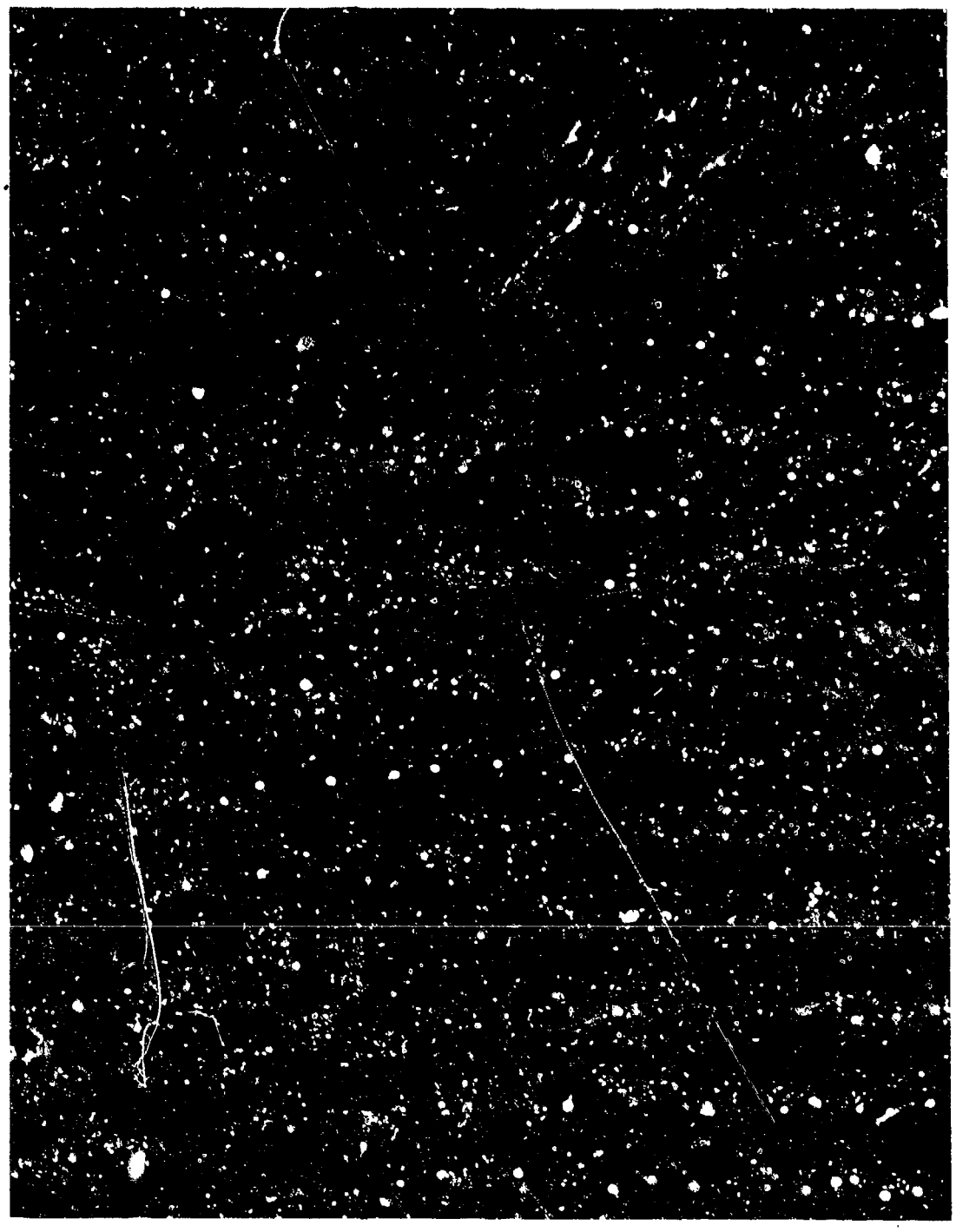
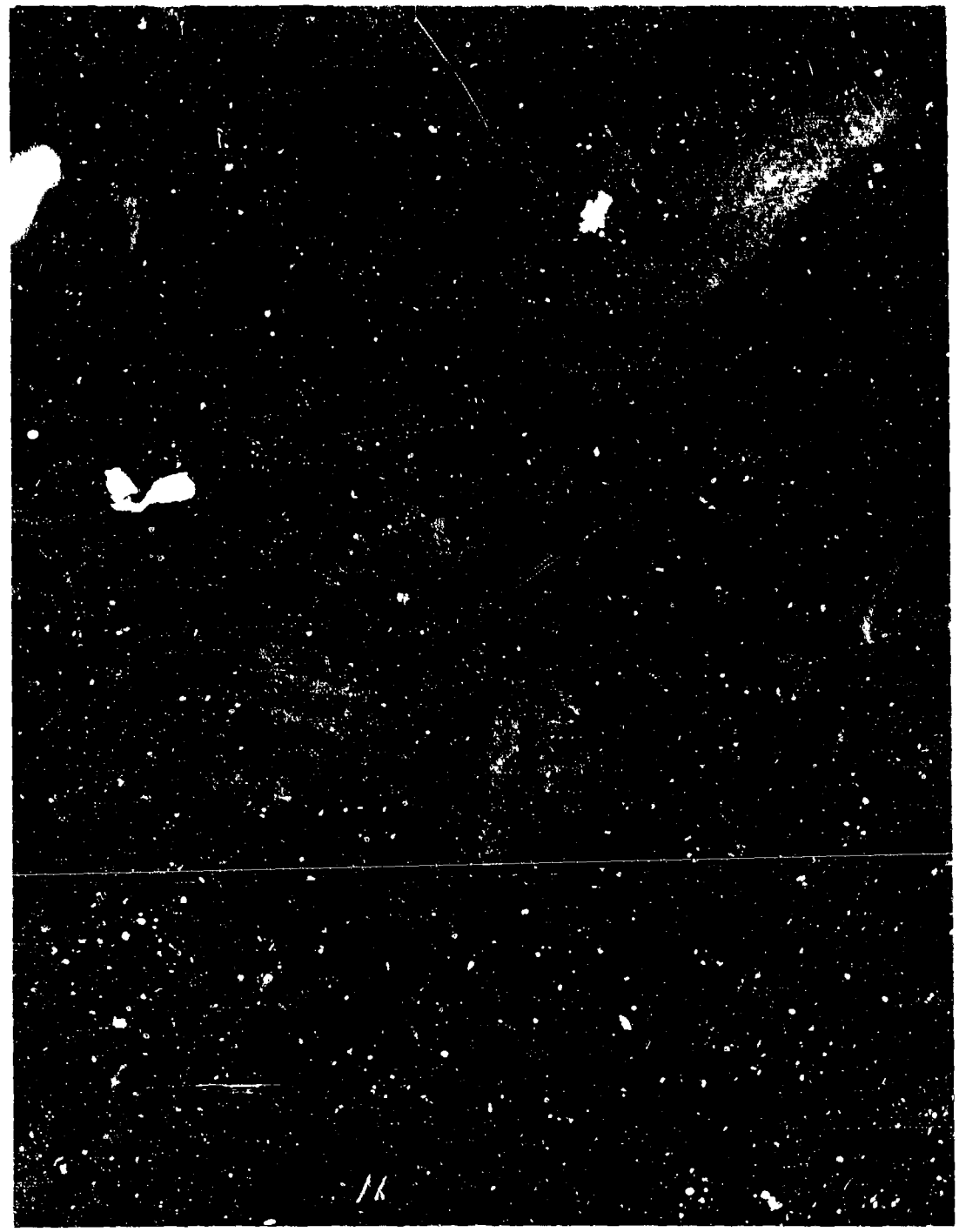
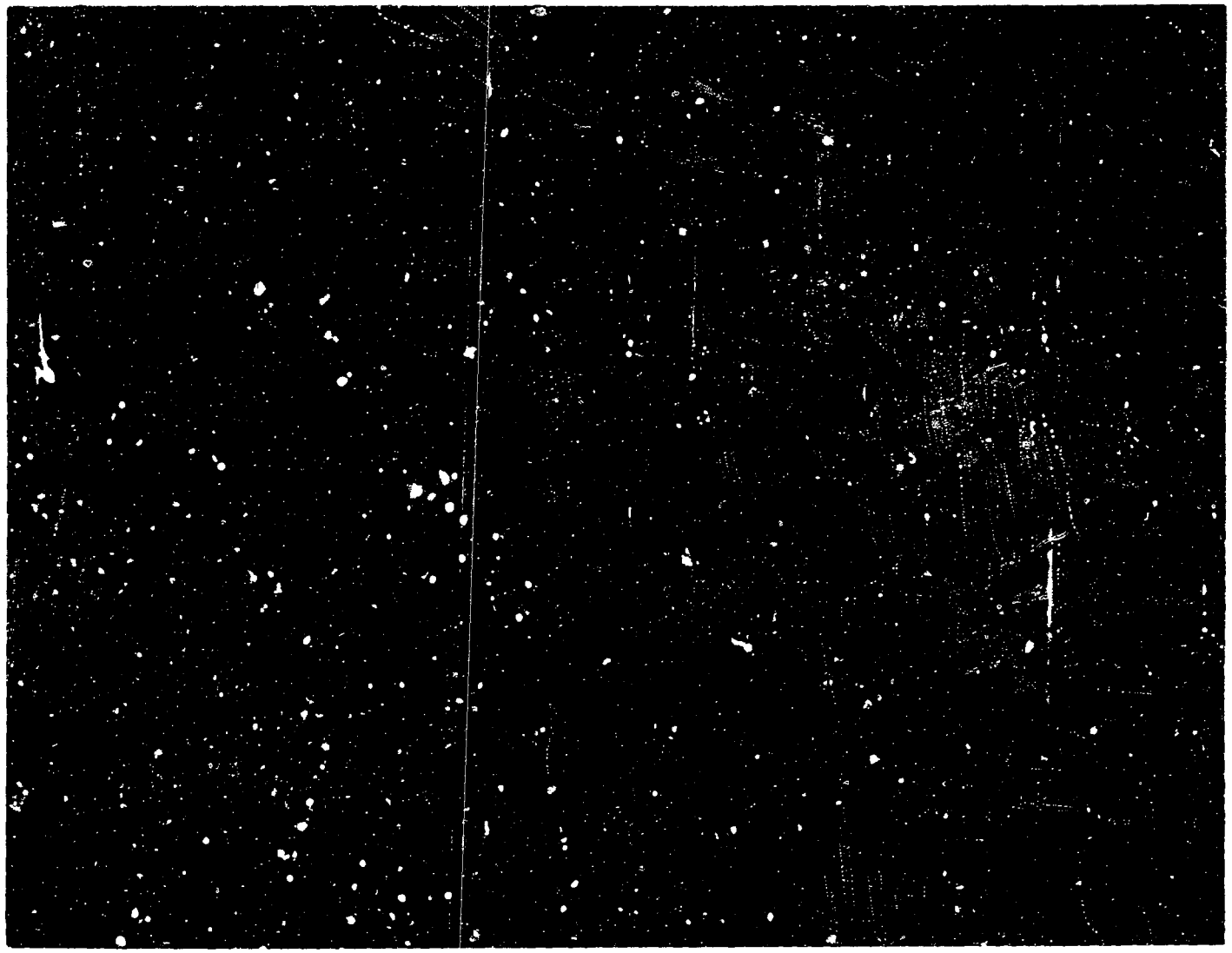


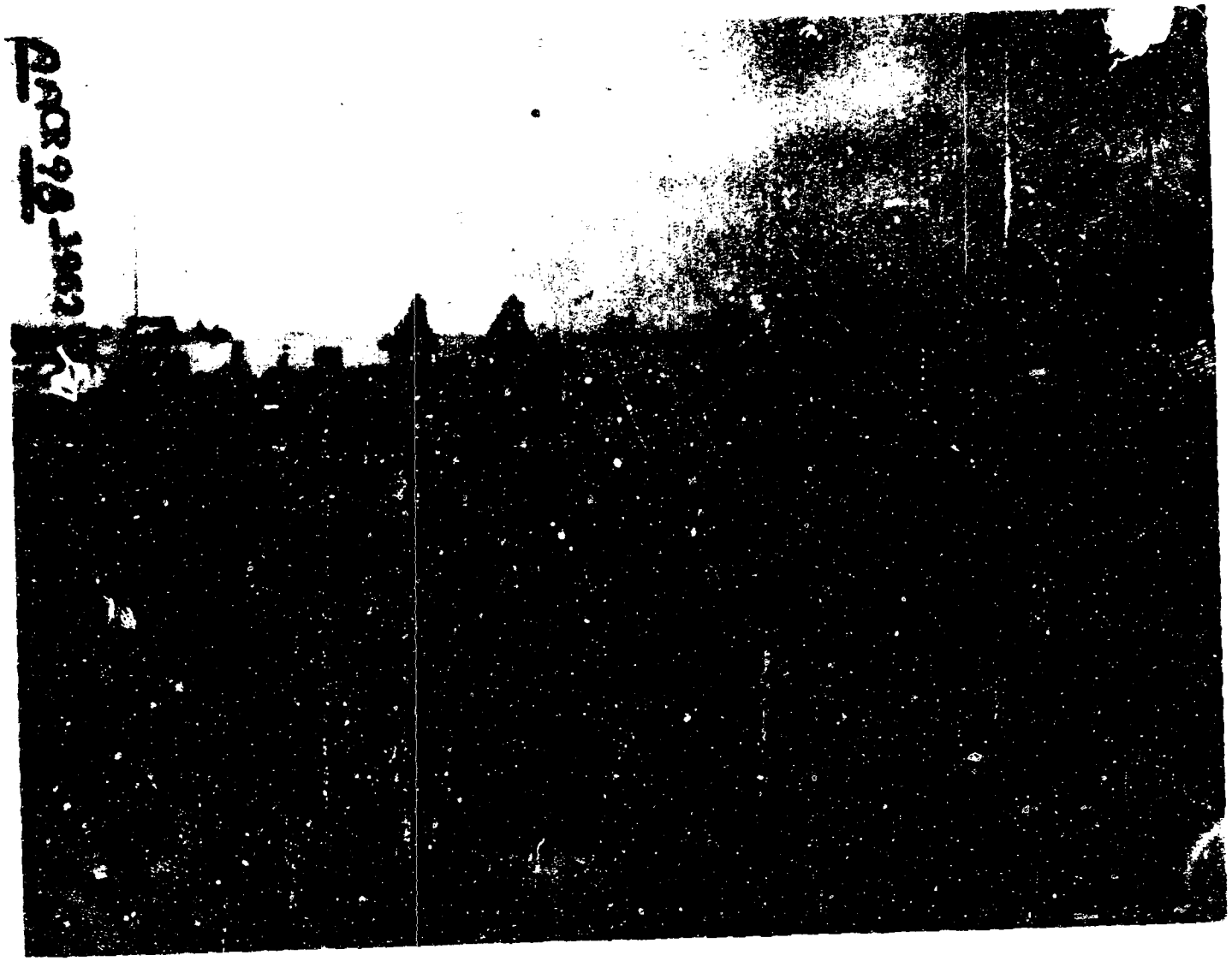
Frame 29 Below "B" Deck Near Outboard Shell - Starboard Wall



Frame 28 Below "B" Deck Near Outboard Shell - Starboard Wall



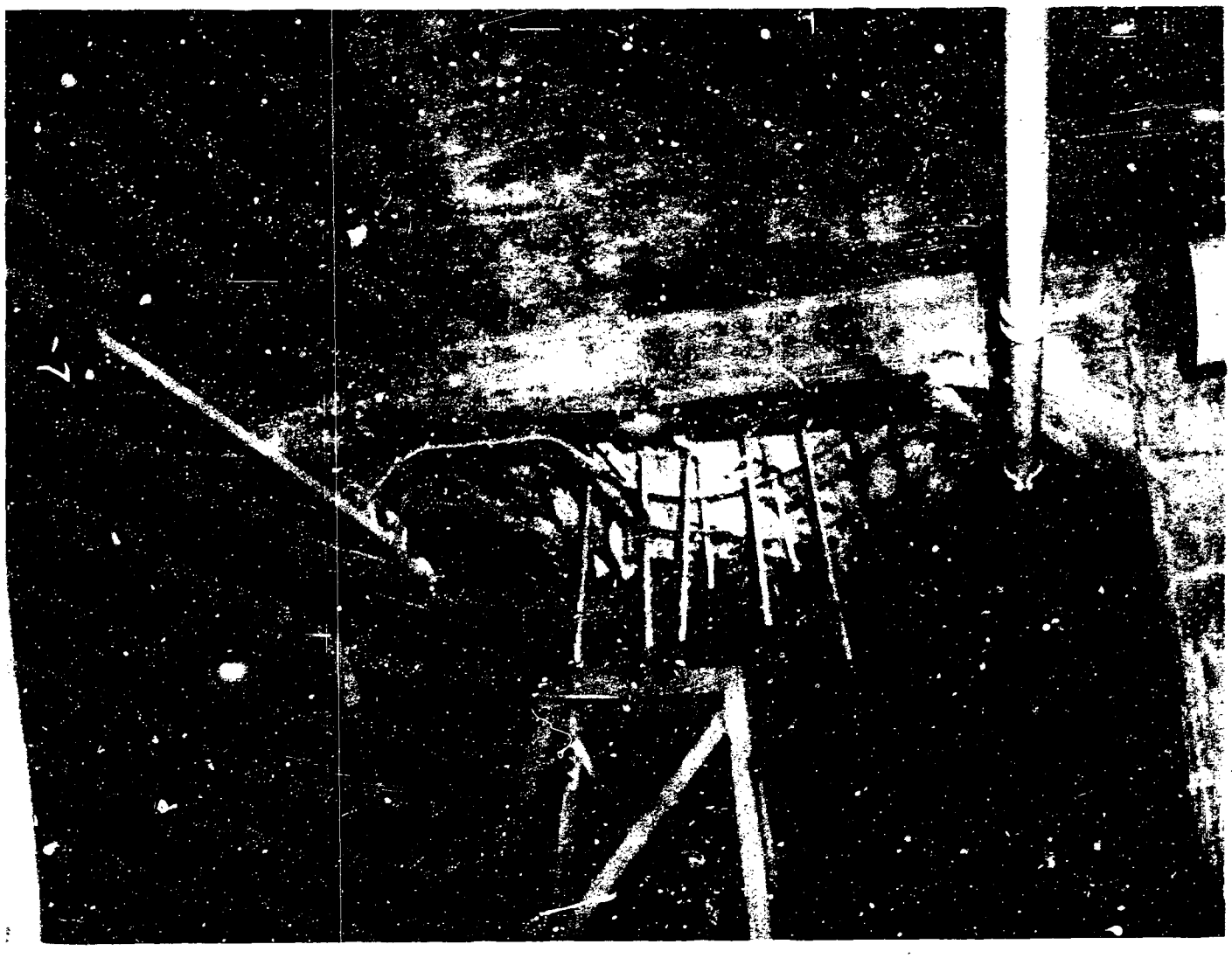
Inboard Shell, Frame 27 to 28 About 4 Feet Above "C" Deck Starboard Wall



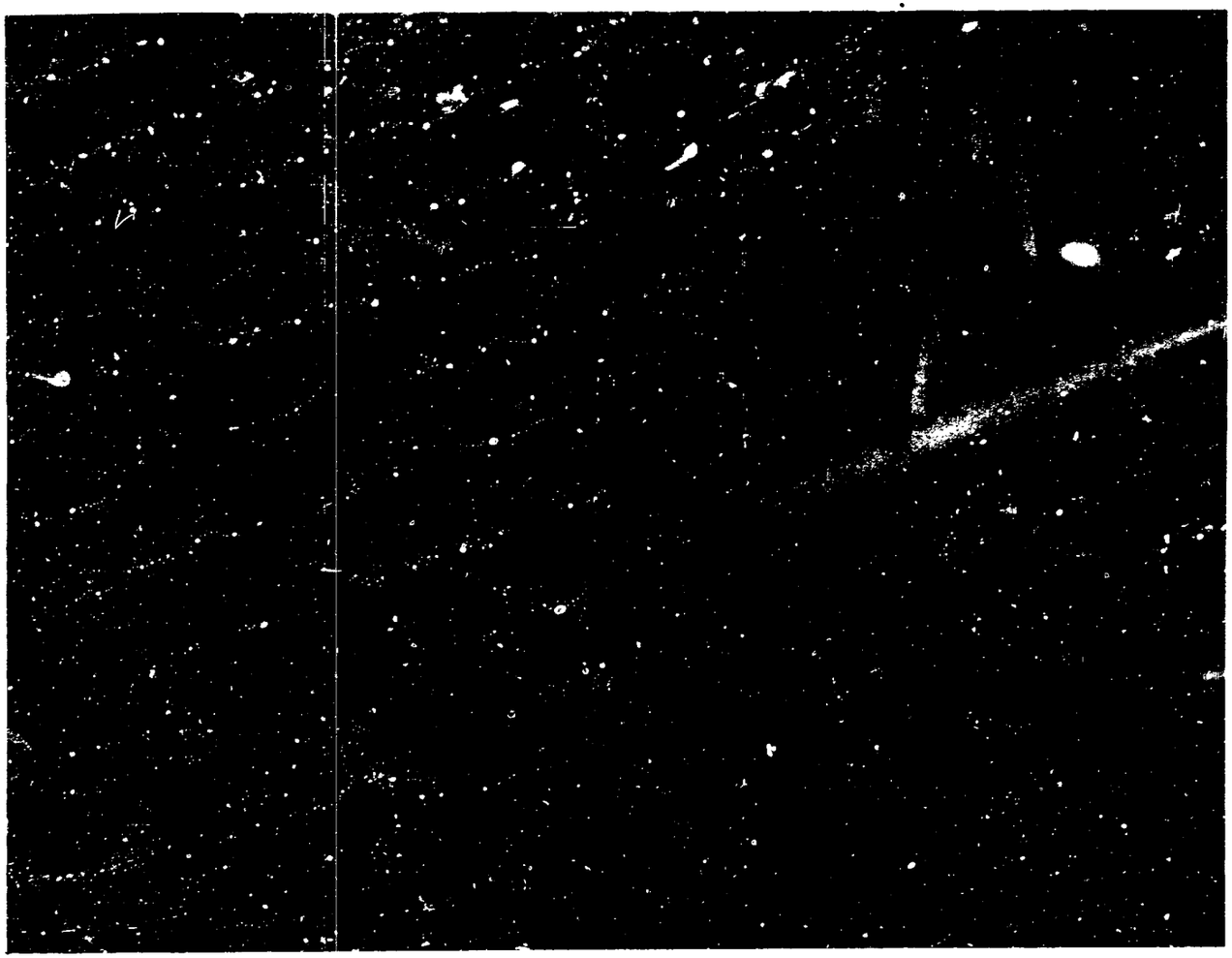
Deck Wall Forward From Aft Starboard Wing Wall

M-46 BOMB DAMAGE
TO
ARDC-13

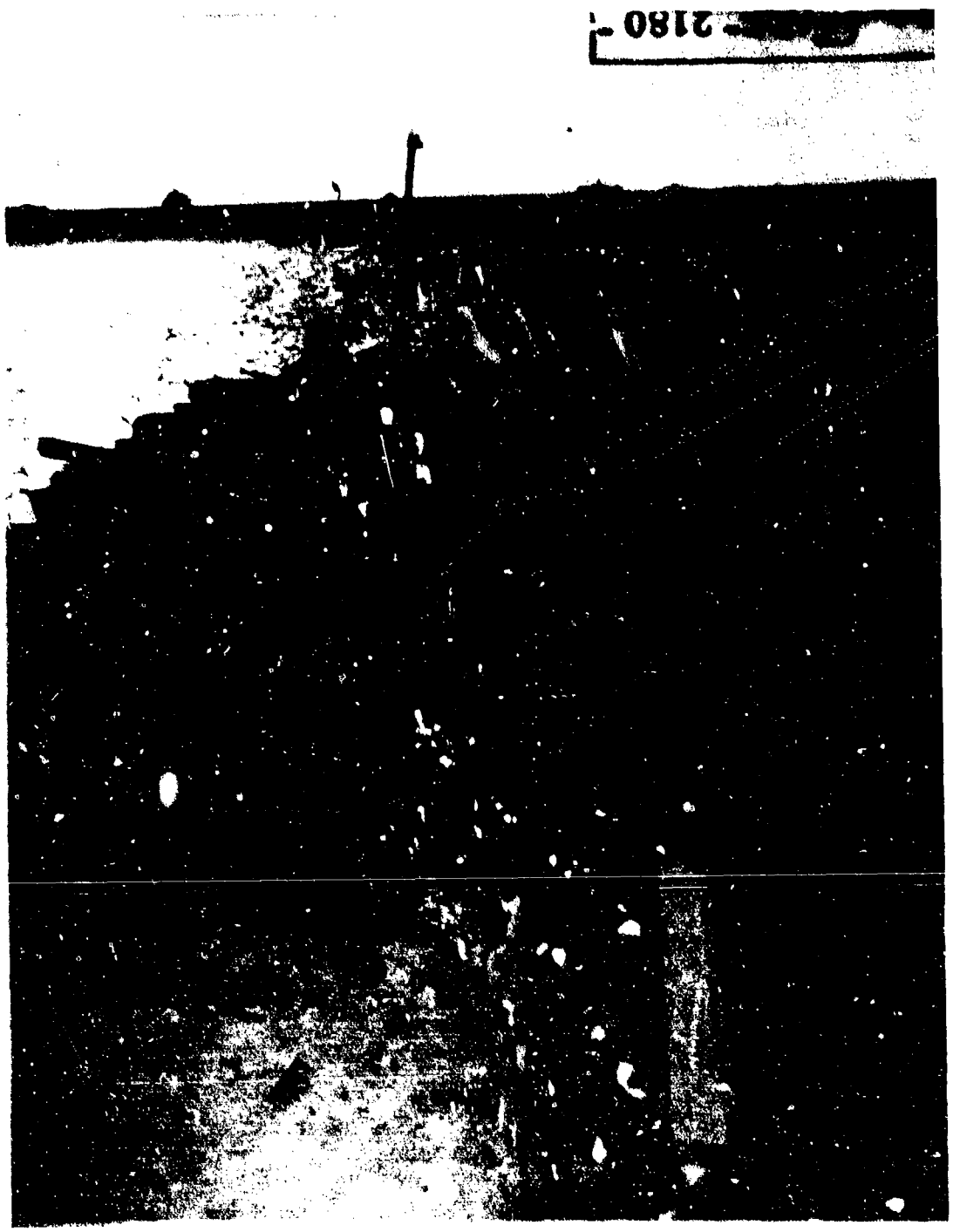
View of Pontoon Moored Astern of ARDC - 13



Frames 12 and 13 - Starboard Wing Wall - Facing Forward



Frame 12 - Details of Failure, Facing Forward



Hole in Starboard Wing Wall - General View Forward

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Defense Special Weapons Agency
6801 Telegraph Road
Alexandria, Virginia 22310-3398

TRC

10 April 1997

MEMORANDUM FOR DEFENSE TECHNICAL INFORMATION CENTER
ATTENTION: OMI/Mr. William Bush

SUBJECT: Declassification of Reports

The Defense Special Weapons Agency (formerly Defense Nuclear Agency) Security Office has reviewed and declassified the following reports:

AD-366718	XRD-32-Volume 3
AD-366726	XRD-12-Volume 2
AD-366703	XRD-16-Volume 1
AD-366702	XRD-14-Volume 2
AD-376819L	XRD-17-Volume 2
AD-366704	XRD-18
AD-367451	XRD-19-Volume 1
AD-366705	XRD-20-Volume 2
AD-376028L	XRD-4
AD-366694	XRD-1
AD-473912	XRD-193
AD-473891	XRD-171
AD-473899	XRD-163
AD-473887	XRD-166
AD-473888	XRD-167
AD-473889	XRD-168

AD-366705

ST-A 28 JAN 80 made target

TRC 10 April 1997

SUBJECT: Declassification of Reports

AD-B197749	XRD-174
AD-473905	XRD-182
AD-366719	XRD-33 Volume 4
AD-366700	XRD-10
AD-366712	XRD-25 Volume 1
AD-376827L	XRD-75
AD-366756	XRD-73
AD-366757	XRD-74
AD-366755	XRD-72
AD-366754	XRD-71
AD-366710	XRD-23 Volume 1
AD-366711	XRD-24 Volume 2
AD-366753	XRD-70
AD-366749	XRD-66
AD-366701	XRD-11
AD-366745	XRD-62.

All of the cited reports are now **approved for public release; distribution statement "A" applies.**

Ardith Jarrett

ARDITH JARRETT
Chief, Technical Resource Center

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KSC

Completed

E.W